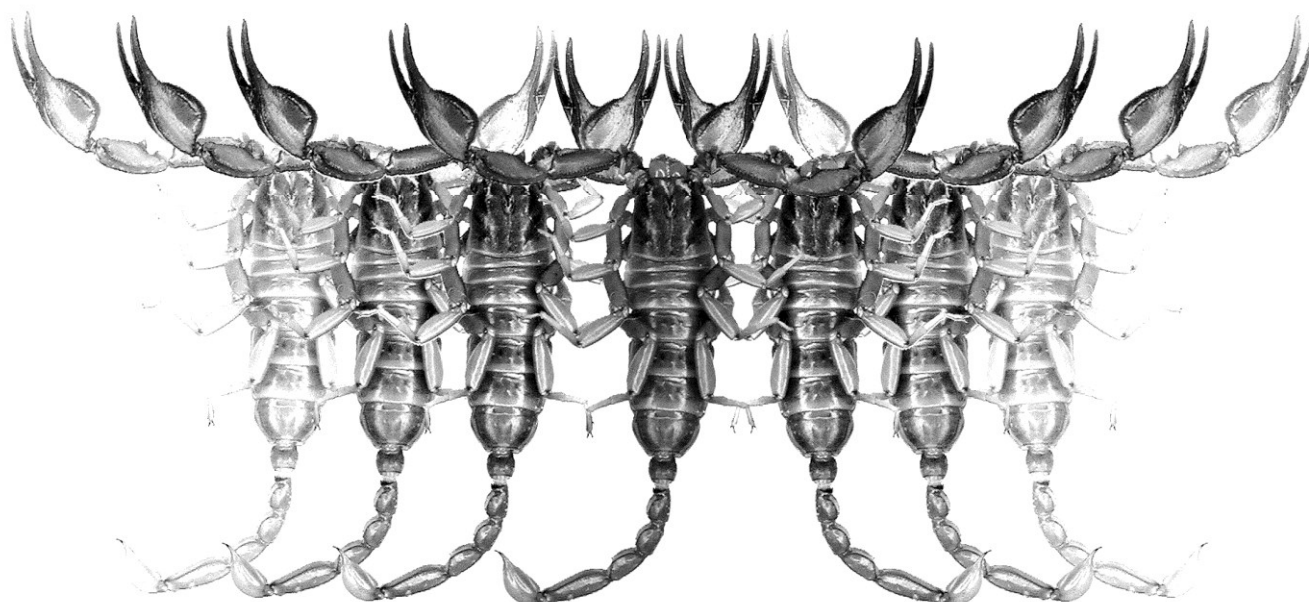


Euscorpius

Occasional Publications in Scorpiology



**Scorpions of Ethiopia (Arachnida: Scorpiones). Part III.
Genus *Hottentotta* Birula, 1908 (Buthidae), with
Description of Three New Species**

František Kovařík & Tomáš Mazuch

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Euscorpius

Occasional Publications in Scorpiology

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Scorpions of Ethiopia (Arachnida: Scorpiones). Part III. Genus *Hottentotta* Birula, 1908 (Buthidae), with description of three new species

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<http://zoobank.org/urn:lsid:zoobank.org:pub:DE247D19-0844-42B5-9C05-96DFB733DE86>

Summary

Three new species *H. gambelaensis* Kovařík, **sp. n.**, *H. gibaensis* Kovařík, **sp. n.** and *H. novaki* Kovařík, **sp. n.** from Ethiopia are described, compared with other species and fully illustrated with color photos of habitus and localities. Data about the distribution of *Hottentotta* in Ethiopia including photos of all seven known species and their Ethiopian localities are summarized.

Introduction

In 2011–2015, the authors have had an opportunity to participate in expeditions to the Horn of Africa, study scorpions at 69 Ethiopian localities and publish several articles (Kovařík, 2011a, 2011b, 2012, 2013, 2015; Kovařík & Lowe, 2012; Kovařík & Mazuch, 2011; and Kovařík et al., 2013, 2015). This paper is the third in a series of articles concerning the distribution of a particular genus in Ethiopia.

Hottentotta is one of the most widely distributed genera of the family Buthidae, with species present throughout Africa, the Arabian Peninsula, and in Asia to Pakistan and India. Scorpions of the genus *Hottentotta* are relatively common in Ethiopia. 42 of 69 examined localities yielded a total of 7 species of this genus. In these localities, specimens of the genus *Hottentotta* were relatively the most frequently collected scorpions, adapted to different habitats.

Methods, Material & Abbreviations

Nomenclature and measurements follow Stahnke (1971), Kovařík (2009), and Kovařík & Ojanguren Affilastro (2013), except for trichobothriotaxy (Vachon, 1974), and sternum (Soleglad & Fet, 2003).

Specimens studied herein are preserved in 80% ethanol. *Depositories*: BMNH (The Natural History Museum, London, United Kingdom); FKCP (František Kovařík, private collection, Prague, Czech Republic);

ZMHB (Museum für Naturkunde der Humboldt-Universität, Berlin, Germany).

Systematics

Family Buthidae C. L. Koch, 1837

Genus *Hottentotta* Birula, 1908

DIAGNOSIS. Medium to large buthids (Sissom, 1990), adults 30–130 mm. Sternum type 1 (Soleglad & Fet, 2003), triangular in shape. Pedipalps orthobothriotaxic, type A β (Vachon, 1974, 1975), femur trichobothrium d_2 dorsal, patella d_3 dorsal of dorsomedian carina. Chelal trichobothrium db usually located between *est* and *et*, or may be on level with trichobothrium *est*, rarely between *est* and *esb*. Trichobothrium *eb* clearly on fixed finger of pedipalp. Pectines with fulcra. Dentate margin of pedipalp chela movable finger with distinct denticles forming 11–16 linear rows and (4)5–7 terminal denticles. Chelicerae with typical buthid dentition (Vachon, 1963), fixed finger armed with two denticles on ventral surface. Tergites I–VI granular, with three carinae, tergite VII with 5 carinae. Carapace with distinct carinae, entire dorsal surface nearly planate. First sternite with two granulated lateral stridulatory areas, which however may be reduced in some species (e. g. in *H. pachyurus* and *H. trilineatus*). Metasoma elongate, segment I with 10 carinae, segments II–IV with 8–10 carinae. Ventrolateral carinae of fifth metasomal segment with all granules



Figures 1–2: *Hottentotta gambelaensis* Kovařík, **sp. n.**, holotype, immature female, dorsal (1) and ventral (2) views.

more or less equal in size and never lobate. Telson bulbous, lumpy and granulated, without subaculear tooth. Legs III and IV with well-developed tibial spurs, first and second tarsomeres with paired ventral setae.

Hottentotta gambelaensis* Kovařík, **sp. n.*
(Figs. 1–18, Table 2)

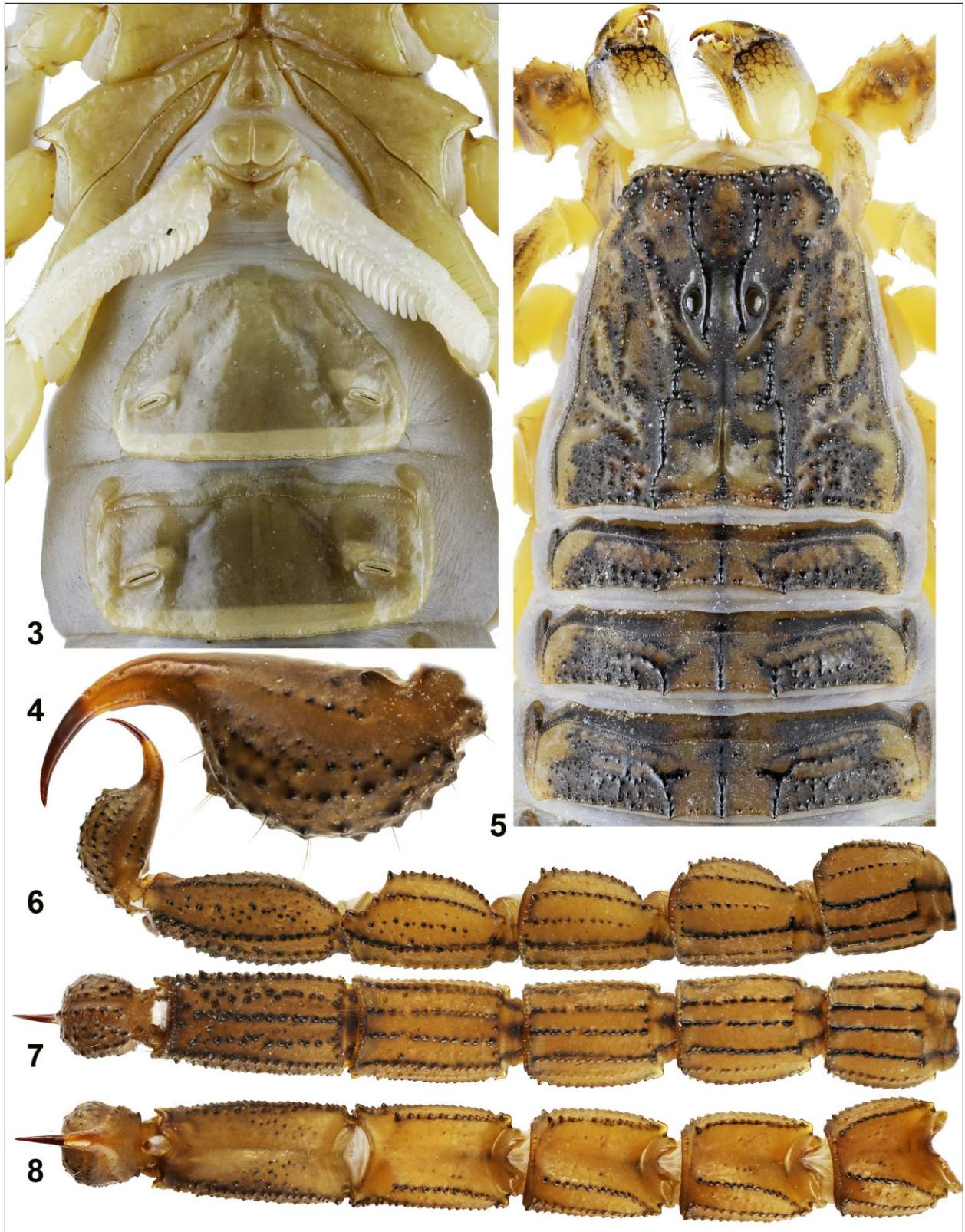
<http://zoobank.org/urn:lsid:zoobank.org:act:6CAD2E10-2BC3-46C7-91A2-03B0D3756419>

TYPE LOCALITY AND TYPE REPOSITORY. Ethiopia, Gambela State, Gambela Baro Hotel, 08°14'42"N 34°35'31"E, 383 m a.s.l.; FKCP.

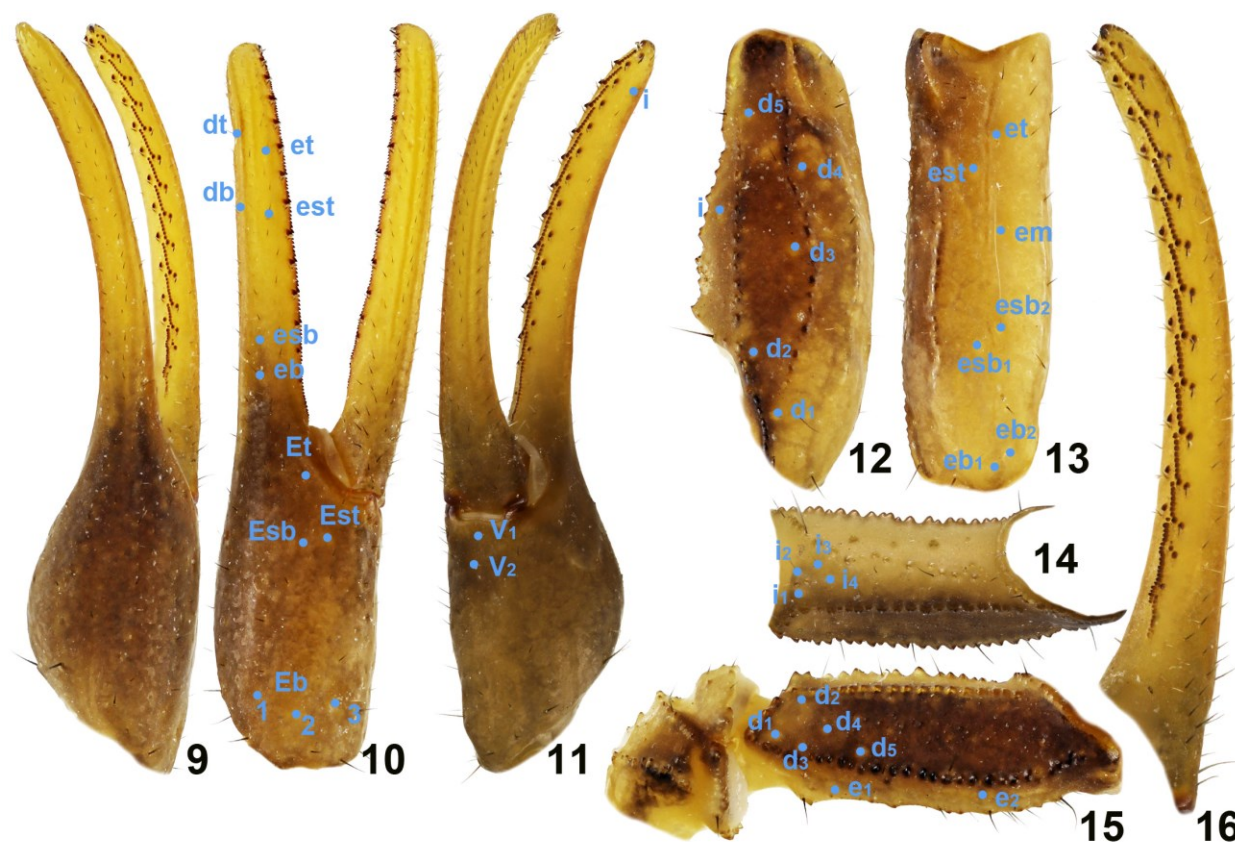
TYPE MATERIAL. Ethiopia, Gambela State, Gambela Baro Hotel, 08°14'42"N 34°35'31"E, 383 m a.s.l., 11.-12.XI.2014 (Fig. 17, Locality No. 14EA), 1♀ im. (holotype), (UV detection), leg. F. Kovařík.

ETYMOLOGY. Named after the type locality.

DIAGNOSIS. Total length of female immature 41.6 mm. Adults unknown. Trichobothrium *db* on fixed finger of pedipalp situated between trichobothria *et* and *est*. Pectinal teeth number 21–22. Chelicerae yellow, with reticulation. Pedipalps and metasoma sparsely hirsute. Carapace and tergites yellowish brown, strongly pig-



Figures 3–8: *Hottentotta gambelaensis* Kovařík, **sp. n.**, holotype, immature female, sternopectinal region and sternites III–IV (3), telson (4), lateral view, chelicerae, carapace and tergites I–III (5), and metasoma and telson, lateral (6), ventral (7), and dorsal (8) views.



Figures 9–16: *Hottentotta gambelaensis* Kovařík, **sp. n.**, holotype female immature. Pedipalp chela, dorsal (9), external (10), and ventral (11) views. Pedipalp patella, dorsal (12) and external (13) views. Pedipalp femur, internal (14) and femur and trochanter dorsal (15) views. The trichobothrial pattern is indicated in Figures 10–15. Pedipalp movable finger (16).

mented with black; metasoma, telson, dorsal surfaces of femur and patella of pedipalps and legs yellowish brown to black. Carapace and tergites black; metasoma, telson, dorsal surfaces of femur and patella of pedipalps and legs brownish to black. Chela of pedipalps yellowish grey. Pedipalps sparsely hirsute and weakly granulated. Femur of pedipalp with 4 granulate carinae. Patella with 8 carinae, some of them smooth, without granules and obsolete. Chela lacks carinae. Movable fingers of pedipalps with 13 rows of denticles and 5 terminal denticles. Seventh sternite bears 4 well marked granulate carinae. First to fourth metasomal segments with 10 carinae; fifth with 5 carinae. All carinae granulated, dorsal carinae bear slightly larger terminal granules. Telson rather bulbous.

DESCRIPTION. The total length of female immature 41.6 mm. Adults unknown. Trichobothrium *db* on fixed finger of pedipalp is situated between trichobothria *et* and *est*. Chelicerae yellow, with reticulation, the tips of teeth on cheliceral fingers are black. For the position and distribution of trichobothria see Figs. 10–15.

COLORATION (Figs. 1–2). The carapace and tergites are yellowish brown, strongly pigmented with black; the

metasoma, telson, dorsal surfaces of pedipalps and legs yellowish grey to black. The tarsomeres of legs are yellow. The ventral surfaces of femur and patella of pedipalps and legs are yellowish.

MESOSOMA AND CARAPACE (Fig. 5). The carapace is carinate and unevenly covered by granules of varying size; much of the granulation is fine, but some granules are larger and distinctly rounded. Tergites I–VI bear three carinae and are granulated, with some intercarinal granules small and others larger and rounded. Tergite VII is pentacarinata. The pectinal tooth count is 21–22. The pectinal marginal tips extend to near to the end of the fourth sternite in immature female. The pectines have three marginal lamellae and eight middle lamellae. The lamellae bear numerous dark long setae, each fulcrum with two to four setae. All sternites are smooth and sparsely hirsute. The seventh sternite bears four granulate carinae. The other sternites bear two furrows.

PEDIPALPS (Figs. 9–16). The pedipalps are sparsely hirsute and weakly granulated. The femur bears four granulated carinae. The patella bears eight granulate carinae. The chela is without carinae. The movable fingers of pedipalps bear 13 rows of denticles and five terminal denticles.



17



18

Figures 17–18: *Hottentotta gambelaensis* Kovařík, sp. n., the type locality (17) and holotype, immature female (18) at the type locality.

LEGS (Figs. 1–2). The tarsomeres bear two rows of macrosetae on the ventral surface and numerous macrosetae on the other surfaces; bristle combs absent. Femur bears only several macrosetae. Femur coarsely granulose, femur and patella with carinae well developed. Tibial spurs present and long on third and fourth legs and absent in the other legs.

METASOMA AND TELSON (Figs. 4, 6–8). All metasomal segments are only very sparsely hirsute. The first metasomal segment is wider than long, other segments are longer than wide. Segments I–IV bear 10 carinae and segment V bears five carinae, three or five ventral and two dorsal. All carinae are granulated and black colored. The dorsal surface of all segments is smooth in the middle and finely granulated on margins. Other surfaces are granulated. The telson is only sparsely hirsute, bulbous, lumpy and strongly granulated.

AFFINITIES. The described features distinguish *H. gambelaensis* sp. n. from all other species of the genus. They are reiterated in the key. Unfortunately only the immature female is known but the strong reticulation of chelicerae and the occurrence distinguish *H. gambelaensis* sp. n. from all other species of the genus. Among all Ethiopian species only *H. trailini* has chelicerae with reticulation. However, *H. trailini* is extremely dark and morphologically very different from *H. gambelaensis* sp. n., which is morphologically much closer to *H. trilineatus*.

COMMENTS ON LOCALITIES AND LIFE STRATEGY. The holotype was only one scorpion specimen collected during night collecting on 11–12 November 2014 (UV detection). In the locality (Fig. 17) we recorded a temperature of 30.4 °C shortly after sunset, which gradually dropped to 25.4 °C (minimum temperature) before sunrise. Humidity during the night varied between 94% and 76%.

***Hottentotta gibaensis* Kovařík, sp. n.**

(Figs. 19–52, 54–56, 152–152, Tables 1, 3, 4)

<http://zoobank.org/urn:lsid:zoobank.org:act:E83D17F4-FE97-40CE-A030-DB5100784014>

Hottentotta trilineatus (in part): Kovařík & Ojanguren, 2013: 342, fig. 1232.

TYPE LOCALITY AND TYPE REPOSITORY. Ethiopia, Southern Nationalities and Peoples Region Federal State (SNNPS), Dawro region, Giba Valley, 06°54'16.8"N 37°24'56.1"E, 1115 m a.s.l.; FKCP.

TYPE MATERIAL. Ethiopia, SNNPS, Dawro region, Giba Valley, 06°54'16.8"N 37°24'56.1"E, 1115 m a.s.l. (Figs. 48–49, Locality No. 14EC), 17.–18.XI.2014, 1♂ (holotype) 8♂11♀juvs. (paratypes), (UV detection), leg. F.

Kovařík; SNNPS, Gemu Gofa, Arba Minch, 2–3.V.1997, 2♀ (paratypes), leg. C. Werner, Arba Minch, 06°00' 31.3"N 37°31'59"E, 1451 m a.s.l. (figs. 44–45 in Kovařík et al., 2015: 11, Locality No. 13EX), 6.VII.2013, 1im. (paratype), (UV detection), leg. F. Kovařík, J. Plíšková, V. Socha; SNNPS, Konso, Dabub, 05°20' 33"N 37°26'57"E, 1381 m a.s.l., 30.VI.2013, 2♂4♀ (fig. 1232 in Kovařík & Ojanguren, 2013: 342, paratypes), leg. F. Kovařík & J. Plíšková.

ETYMOLOGY. Named after the type locality.

DIAGNOSIS. Total length of adult males 47–55 mm, 58–66 females. Trichobothrium *db* on fixed finger of pedipalp situated between trichobothria *et* and *est*. Male with fingers proximally little more twisted than female. Female has longer and narrower chela of pedipalps. Pectinal teeth number 22–25 in males, 19–23 in females. Chelicerae yellow, without reticulation. Pedipalps and metasoma sparsely hirsute. Carapace and tergites yellowish brown, strongly pigmented with black; metasoma, telson, dorsal surfaces of femur and patella of pedipalps and legs yellowish brown to black. Chela of pedipalps yellowish to reddish brown. Pedipalps sparsely hirsute and weakly granulated. Femur of pedipalp with 4 granulate carinae. Patella with 8 granulate carinae. Chela lacks carinae. Movable fingers of pedipalps with 12–13 rows of denticles and 5 terminal denticles. Seventh sternite bears 4 well marked granulate carinae. First to fourth metasomal segments with 10 carinae; fifth with 5 carinae. All carinae granulated, dorsal carinae bear slightly larger terminal granules. Metasoma wide. Length to width ratio of fourth metasomal segment 1.30–1.39 in males, 1.44–1.45 in females. Telson rather bulbous.

DESCRIPTION. The total length of adult males 47–55 mm, 58–66 females. Trichobothrium *db* on fixed finger of pedipalp is situated between trichobothria *et* and *est*. Male has the fingers proximally a little more twisted than female. Female has longer and slightly narrower chela of pedipalps. Chelicerae yellow, without reticulation, the tips of teeth on chelical fingers are black. For the position and distribution of trichobothria see Figs. 34–39.

COLORATION (Figs. 19–24). The carapace and tergites are yellowish brown, strongly pigmented with black; the metasoma, telson, dorsal surfaces of femur and patella of pedipalps and legs yellowish brown to black. Chela of pedipalps yellowish to reddish brown. The tarsomeres of legs are yellow. The chela and ventral surfaces of femur and patella of pedipalps and legs are yellowish to reddish brown.

MESOSOMA AND CARAPACE (Figs. 23–24). The carapace is carinate and unevenly covered by granules of varying size; much of the granulation is fine, but some granules



Figures 19–22: *Hottentotta gibaensis* Kovářík, sp. n. **Figures 19–20.** Holotype male, dorsal (19) and ventral (20) views. **Figures 21–22.** Paratype female, dorsal (21) and ventral (22) views.



Figures 23–26: *Hottentotta gibaensis* Kovařík, sp. n. **Figures 23, 25.** Holotype male, chelicerae, carapace and tergites I–III (23), and sternopectinal region and sternite III (25). **Figures 24, 26:** Paratype female, chelicerae, carapace and tergites I–III (24), and sternopectinal region and sternite III (26).

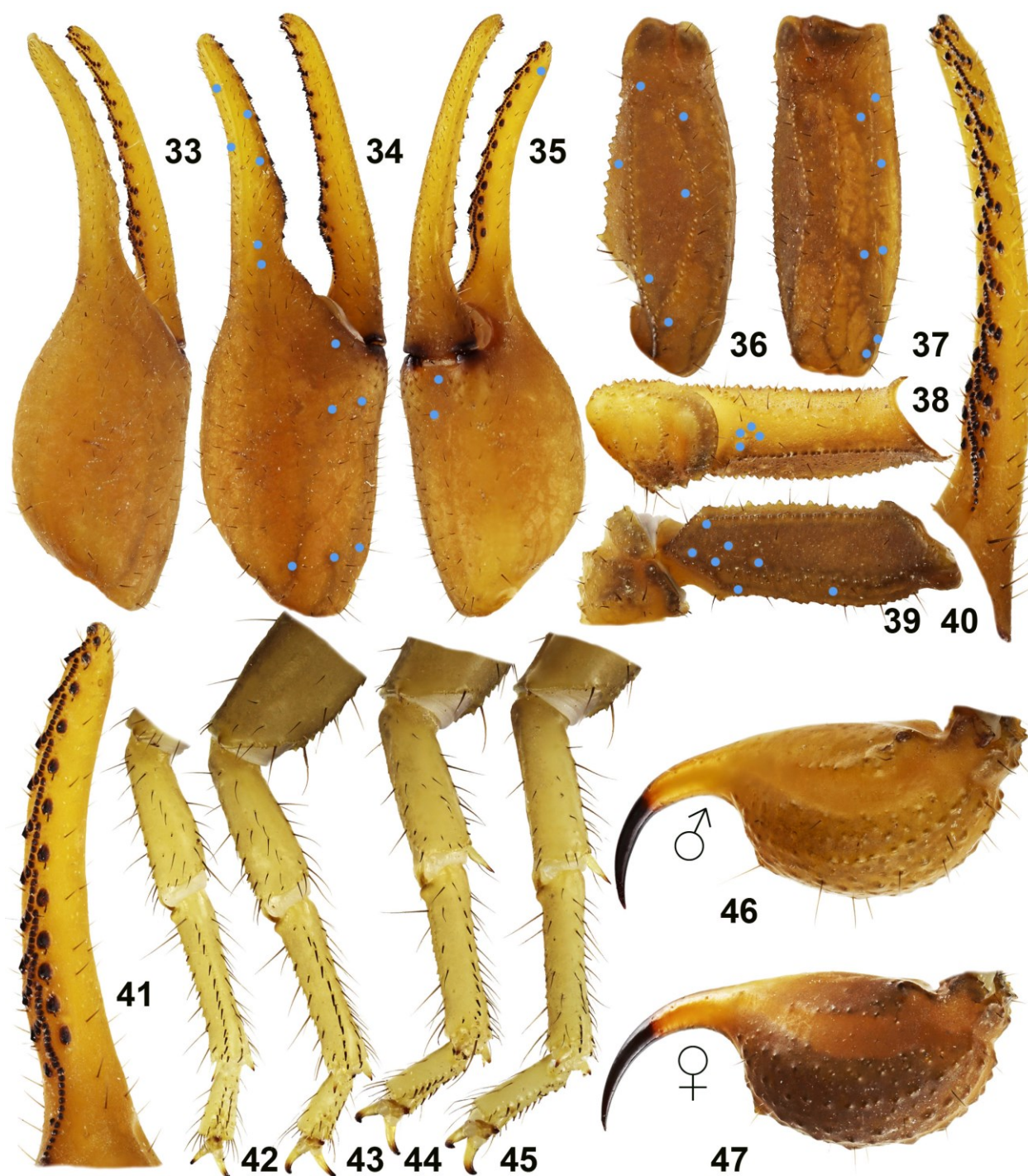


Figures 27–32: *Hottentotta gibaensis* Kovařík, sp. n. **Figures 27–29.** Holotype male, metasoma and telson, lateral (27), ventral (28), and dorsal (29) views. **Figures 30–32.** Paratype female, metasoma and telson, lateral (30), ventral (31), and dorsal (32) views.

are larger and distinctly rounded. Tergites I–VI bear three carinae and are granulated, with some intercarinal granules small and others larger and rounded. Tergite VII is pentacarinat. The pectinal tooth count is 22–25 (1x22, 6x23, 9x24, 9x25) in males and 19–23 (2x19, 5x20, 4x21, 13x22, 4x23) in females. The pectinal marginal tips extend to about midlength of the fourth sternite in males and near to the end of the fourth sternite in females. The pectines have three marginal lamellae and eight to nine middle lamellae. The lamellae bear num-

erous dark long setae, each fulcrum with three to five setae. All sternites are smooth and sparsely hirsute. The seventh sternite bears four granulate carinae. The other sternites bear two furrows.

PEDIPALPS (Figs. 33–41). The pedipalps are sparsely hirsute and weakly granulated. The femur bears four granulated carinae. The patella bears eight granulate carinae. The chela is without carinae. The movable fingers of pedipalps bear 12–13 rows of denticles and five terminal denticles.

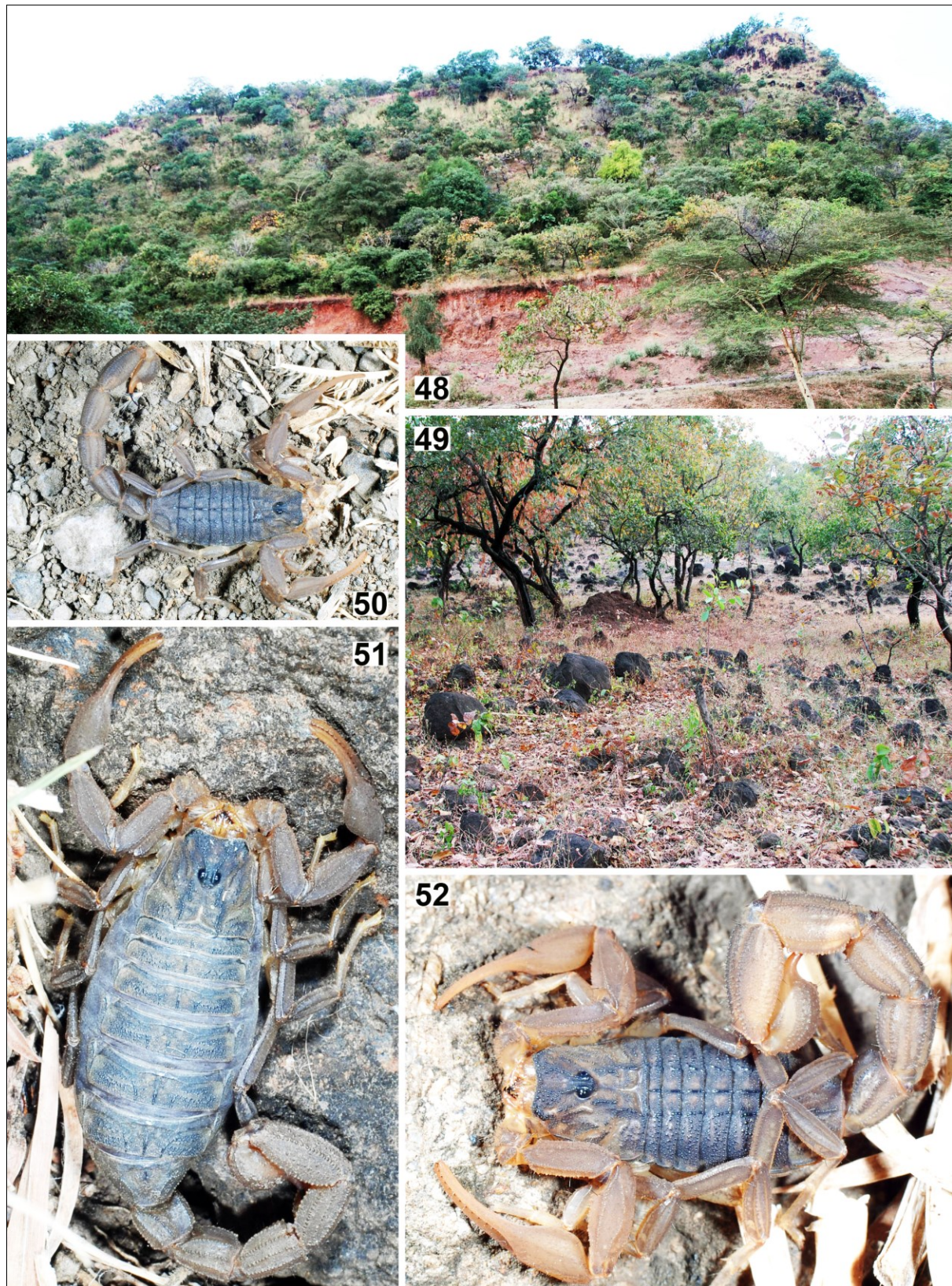


Figures 33–47: *Hottentotta gibaensis* Kovařík, sp. n. **Figures 33–46.** Holotype male. Pedipalp chela, dorsal (33), external (34), and ventral (35) views. Pedipalp patella, dorsal (36) and external (37) views. Pedipalp femur and trochanter, internal (38) and dorsal (39) views. The trichobothrial pattern is indicated in Figures 34–39. Pedipalp movable (40) and fixed (41) fingers. Distal segments of legs I–IV (42–45), retrolateral view. Telson (46), lateral view. **Figure 47.** Paratype female, telson, lateral view.

LEGS (Figs. 42–45). The tarsomeres bear two rows of macrosetae on the ventral surface and numerous macrosetae on the other surfaces; bristle combs absent. Femur bears only several macrosetae. Femur coarsely granulose, femur and patella with carinae well deve-

loped. Tibial spurs present and long on third and fourth legs and absent in the other legs.

METASOMA AND TELSON (Figs. 27–32, 46–47). All metasomal segments are only very sparsely hirsute. The first metasomal segment is wider than long, other segments



Figures 48–52: *Hottentotta gibaensis* Kovařík, sp. n. **Figures 48–49.** The type locality. **Figures 50–52.** Juvenile (50), female (51), and male (52) paratypes at the type locality.

<i>Hottentotta gibaensis</i> sp. n.					
Dimensions (mm)		♂ holotype	♂ paratype	♀ paratype	♀ paratype
Carapace	L / W	6.3 / 6.55	5.7 / 6.0	7.15 / 7.95	6.85 / 7.1
Mesosoma	L	16.5	12.7	22.9	19.2
Tergite VII	L / W	4.2 / 6.15	3.7 / 5.75	5.0 / 8.3	3.75 / 7.15
Metasoma	L	32.7	28.6	35.13	31.95
Segment I	L / W / H	3.8 / 4.45 / 4.05	3.4 / 3.85 / 3.35	4.1 / 4.55 / 3.96	3.7 / 4.2 / 3.7
Segment II	L / W / H	4.6 / 4.15 / 3.85	4.1 / 3.55 / 3.45	4.93 / 4.35 / 3.85	4.3 / 3.93 / 3.75
Segment III	L / W / H	5.05 / 4.1 / 4.1	4.2 / 3.5 / 3.6	5.25 / 4.3 / 3.8	4.7 / 3.85 / 3.85
Segment IV	L / W / H	5.8 / 3.9 / 4.43	5.1 / 3.35 / 3.65	6.1 / 4.1 / 4.2	5.65 / 3.65 / 3.9
Segment V	L / W / H	6.9 / 4.2 / 3.6	6.0 / 3.5 / 3.23	7.35 / 4.0 / 3.75	6.7 / 3.56 / 3.55
Telson	L / W / H	6.55 / 3.2 / 2.95	5.8 / 2.55 / 2.43	7.4 / 3.7 / 3.35	6.9 / 3.25 / 3.05
Pedipalp	L	23.1	20.3	24.6	23.7
Femur	L / W	5.7 / 1.82	4.8 / 1.6	5.9 / 2.2	5.6 / 2.0
Patela	L / W	6.55 / 2.45	5.8 / 2.1	7.1 / 2.9	6.75 / 2.6
Chela	L	10.85	9.7	11.6	11.35
Manus	L / W / H	4.25 / 3.3 / 2.93	4 / 2.85 / 2.5	4.2 / 3.0 / 2.8	4.1 / 2.8 / 2.65
Movable finger	L	6.6	5.7	7.4	7.25
Total	L	55.5	47	65.18	58

Table 1: Comparative measurements of adults of *Hottentotta gibaensis* sp. n. Abbreviations: length (L), width (W, in carapace it corresponds to posterior width), depth (H).

are longer than wide. Segments I–IV bear 10 carinae and segment V bears five carinae, three or five ventral and two dorsal. All carinae are granulated. The dorsal surface of all segments is smooth in the middle and finely granulated on margins. Other surfaces are granulated. The telson is only sparsely hirsute, bulbous, lumpy and granulated.

AFFINITIES. The described features distinguish *H. gibaensis* sp. n. from all other species of the genus. They are recounted in the key. The morphology make the new species close to *H. minax*. *H. gibaensis* sp. n. also differs from *H. minax* in having **1)** lateral surface of metasoma granulated in both sexes (in males of *H. minax* bumpy usually without granules); **2)** lateral carinae on metasomal segments I–IV complete in both sexes (usually incomplete or absent in males of *H. minax*); **3)** ventral metasomal carinae in the same color as metasoma (ventral metasomal carinae in both sexes black, darker than metasoma in *H. minax*).

COMMENTS ON LOCALITIES AND LIFE STRATEGY. We visited the type locality on 17 November 2014. During night collecting on 17–18 November 2014 (UV detection), in the type locality (Figs. 48–49) the unique scorpion species *H. gibaensis* sp. n. was relatively common, found immediately after sunset (19:45 h, temperature 28.4 °C). On the locality we recorded that temperature gradually dropped to 18.3 °C (minimum temperature) before sunrise. Humidity during the night varied between 48% (evening) and 88% (morning).

Hottentotta minax (L. Koch, 1875)

(Figs. 57–58, 65–66, 69–70, 76–88, 154–155, Tables 3–4)

Buthus minax L. Koch, 1875: 4.

Hottentotta minax: Kovařík & Ojanguren, 2013: 168–169, 320–321, 335–337, figs. 1089–1092, 1101–1106, 1185–1205 (complete reference list until 2013).

TYPE LOCALITY AND TYPE REPOSITORY. Egypt, Cairo; ZMHB.

ETHIOPIAN MATERIAL EXAMINED. Ethiopia, Adirkey, 13°23'56"N 37°59'53.1"E, 1553 m a.s.l. (Locality No. 12ED, fig. 1192 in Kovařík & Ojanguren, 2013: 335), 16.XI.2012, 2♀4juvs., leg. F. Kovařík, FKCP; 13°36'05"N 38°08'46"E, 1412 m a.s.l. (Locality No. 12EE, fig. 1191 in Kovařík & Ojanguren, 2013: 335), 8juvs., 16.XI.2012, leg. F. Kovařík, FKCP; Adwa village, Abagarima Mt., 14°11'08"N 38°53'01"E, 1910 m a.s.l. (Locality No. 12EF, fig. 1201 in Kovařík & Ojanguren, 2013: 337), 16.XI.2012, 28♂8♀24juvs. (UV detection), leg. F. Kovařík, FKCP; 14°15'30"N 39°02'06"E, 1921 m a.s.l. (Locality No. 12EG, figs. 1194 and 1202 in Kovařík & Ojanguren, 2013: 336 and 337), 17.XI.2012, 1♂1juv., leg. F. Kovařík, FKCP; Mekele, 13°33'04"N 39°30'56"E, 2143 m a.s.l. (Locality No. 12EH, fig. 1203 in Kovařík & Ojanguren, 2013: 337), 17.XI.2012, 1♂1♀1juv. (UV detection), leg. F. Kovařík, FKCP; 13°43'10"N 39°55'34"E, 879 m a.s.l. (Locality No. 12EI), 18.XI.2012, 1juv., leg. F. Kovařík, FKCP; 12°13'33.9"N



Figures 53–64: Figure 53. *Hottentotta gambelaensis* Kovařík, sp. n., holotype female immature, chela dorsal. Figures 54–56. *H. gibaensis* Kovařík, sp. n., holotype male, chela dorsal (54), paratype female, chela dorsal (55) and external (56). Figures 57–58. *H. minax*, male from locality 12EG, chela dorsal (57), female from locality 12EJ, chela dorsal (58). Figures 59–60. *H. novaki* Kovařík, sp. n., holotype female, chela dorsal (59), and movable finger (60). Figures 61–62. *H. trailini*, paratype male chela dorsal (61) and paratype female chela dorsal (62). Figures 63–64. *H. trilineatus*, male (63) and female (64) from locality 14EO, chela dorsal.

Dimensions (MM)		<i>H. novaki</i> sp. n. ♀ holotype	<i>H. gambelaensis</i> sp. n. ♀ im. holotype
Carapace	L / W	6.0 / 6.7	4.85 / 5.25
Mesosoma	L	17	14.35
Tergite VII	L / W	4.1 / 7.05	2.65 / 5.0
Metasoma	L	29.33	22.43
Segment I	L / W / H	3.7 / 4.13 / 3.43	2.75 / 2.9 / 2.5
Segment II	L / W / H	4.25 / 4.03 / 3.5	3.3 / 2.75 / 2.6
Segment III	L / W / H	4.63 / 4.0 / 3.43	3.35 / 2.7 / 2.5
Segment IV	L / W / H	5.2 / 3.75 / 3.4	3.9 / 2.63 / 2.43
Segment V	L / W / H	6.15 / 3.56 / 3.15	4.73 / 2.5 / 2.3
Telson	L / W / H	5.4 / 2.73 / 2.55	4.4 / 2.15 / 1.9
Pedipalp	L	20.7	15.6
Femur	L / W	4.9 / 1.53	3.75 / 1.25
Patela	L / W	5.7 / 2.55	4.4 / 1.73
Chela	L	10.1	7.45
Hand	L / W / H	4.0 / 2.5 / 2.6	2.25 / 1.75 / 1.6
Movable finger	L	6.1	5.2
Total	L	52.3	41.6

Table 2: Comparative measurements of adults of *Hottentotta novaki* sp. n. and *H. gambelaensis* sp.n. Abbreviations: length (L), width (W, in carapace it corresponds to posterior width), depth (H).

39°36'45"E, 1491 m a.s.l. (Fig. 86, Locality No. 12EJ, fig. 1204–1205 in Kovařík & Ojanguren, 2013: 337), 19.XI.2012, 1♂5♀3juvs., leg. F. Kovařík, FKCP.

DIAGNOSIS. Total length 45–70 mm. Trichobothrium *db* on fixed finger of pedipalp situated between trichobothria *et* and *est*, may be on level with *est*. Manus of pedipalp usually of same width in both sexes, but males have fingers twisted whereas females have them straight. Pectinal teeth number 19–28. Chelicerae yellow, without reticulation, only tips of teeth on chelicer fingers are black. Pedipalps sparsely hirsute. Metasoma bears only a few hairs. Color usually uniformly yellowish brown, only ventral carinae of metasoma black; mesosoma and carapace may be black in some specimens. Femur of pedipalps with 5 carinae that may be incomplete. Patella with 8 carinae, of which some are smooth, without granules and obsolete. Chela lacks carinae. Movable fingers of pedipalps with 12–13 rows of denticles and 5 terminal denticles. Seventh sternite with 4 well marked carinae. First to third metasomal segments with 10 carinae; fourth with 8 or 10 carinae; fifth segment with 5 carinae. Lateral carinae may not be discernible in some males. All carinae granulated, dorsal carinae bear larger terminal granules. Metasoma strongly granulated, accessory rows of granules present on dorsal surfaces of segments as well as on ventral surface of fifth segment. First metasomal segment of adults always wider than long; second metasomal segment usually also wider than long, but in smaller, less developed specimens of both sexes may be longer than wide. Second to fourth metasomal segment width ratio less than 1.2.

DISTRIBUTION. In addition to Ethiopia cited also from Cameroon, Chad, Egypt, Eritrea, Libya, Sudan (Kovařík & Ojanguren, 2013: 168).

***Hottentotta novaki* Kovařík, sp. n.**

(Figs. 59–60, 75, 89–107, 110–111, Tables 2, 4)

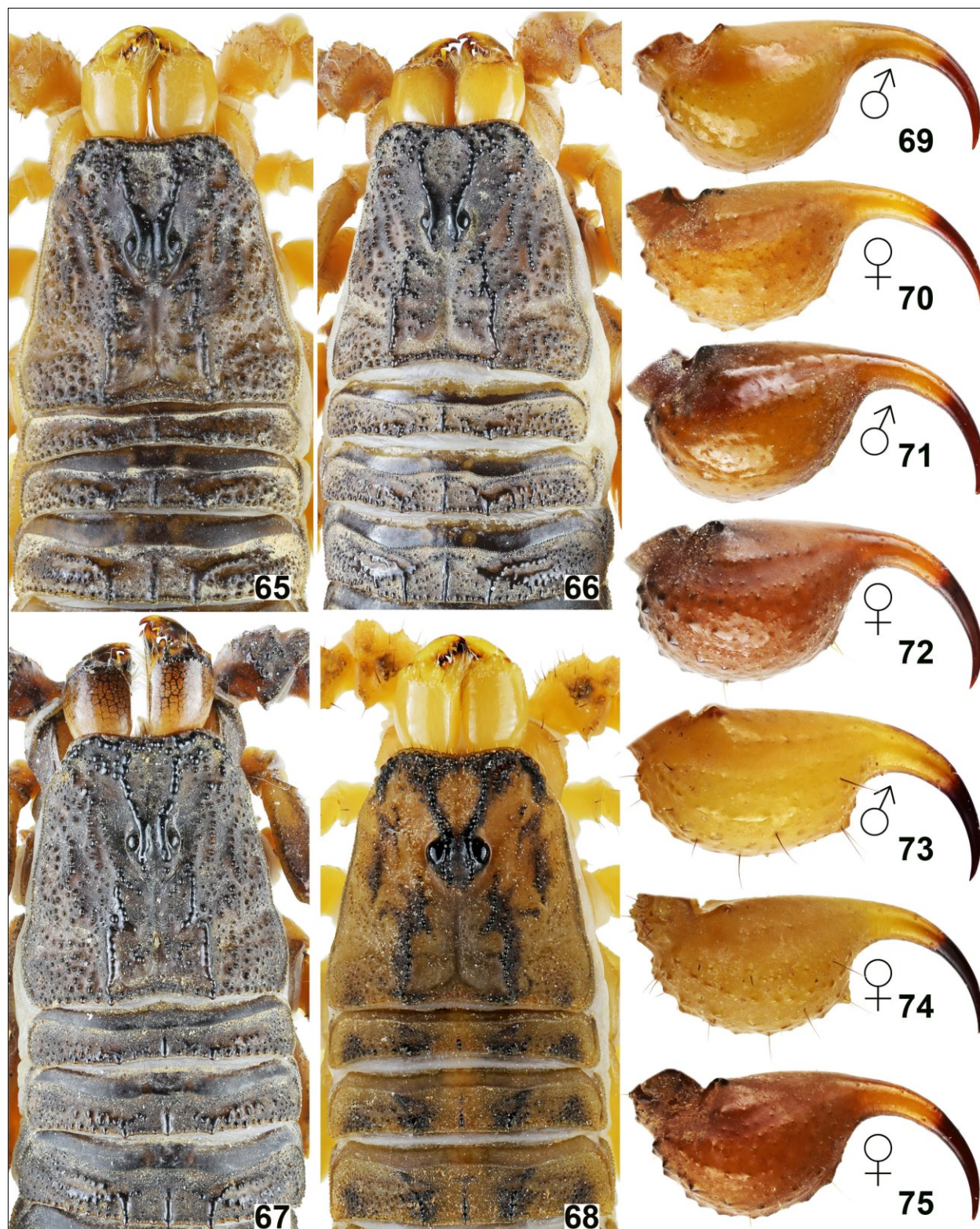
<http://zoobank.org/urn:lsid:zoobank.org:act:5BFCA6CF-4C8B-42A8-9071-E4AF8D0EB098>

TYPE LOCALITY AND TYPE REPOSITORY. Ethiopia, near Abai bridge, 10°04'37.4"N 38°11'25.5"E, 1077 m a.s.l.; FKCP.

TYPE MATERIAL. Ethiopia, near Abai bridge, 10°04'37.4"N 38°11'25.5"E, 1077 m a.s.l. (Fig. 110, Locality No. 12EA), 12.XI.2012, 1♀ (holotype), leg. F. Kovařík and P. Novák.

ETYMOLOGY. Named after Pavel Novák, who collected the holotype together with F.K.

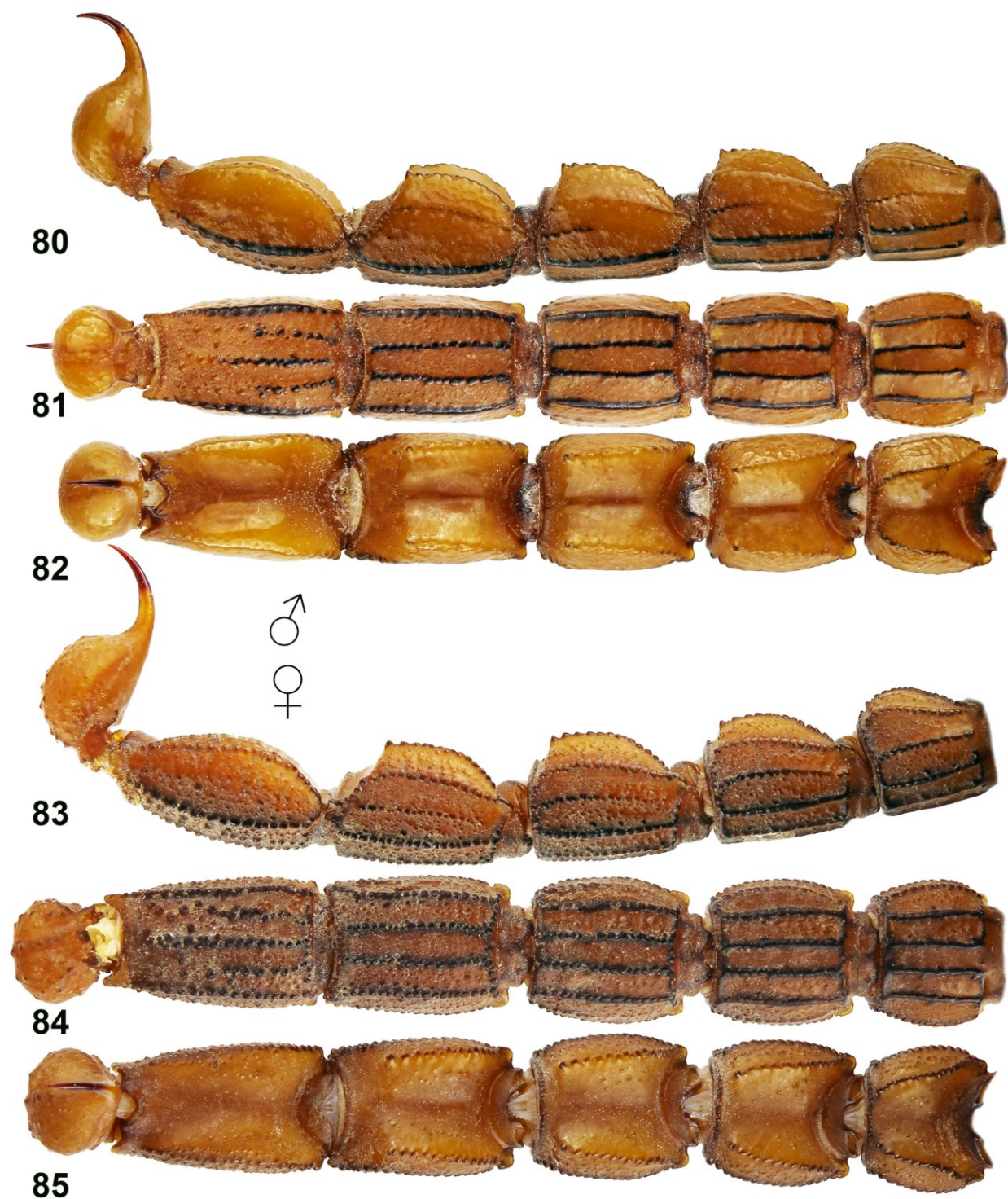
DIAGNOSIS. Total length of adult female 52.3 mm. Male unknown. Trichobothrium *db* on fixed finger of pedipalp situated between trichobothria *et* and *est*. Female has long and narrow chela of pedipalps. Pectinal teeth number 19–20 in female. Chelicerae yellow, without reticulation. Pedipalps and metasoma sparsely hirsute. Carapace and tergites black; metasoma, telson, dorsal surfaces of pedipalps and legs reddish brown. Pedipalps sparsely hirsute and weakly granulated. Femur of pedipalp with 4 granulate carinae. Patella with 8 carinae, some of them smooth, without granules and obsolete.



Figures 65–75: Figures 65–68. Chelicerae, carapace and tergites I–III. *Hottentotta minax*, male from locality 12EG (65). *H. minax*, female from locality 12EJ (66). *H. trailini*, holotype male (67). *H. trilineatus*, male from locality 14EE (68). **Figures 69–75.** Telson, lateral views. *H. minax*, male from locality 12EG (69). *H. minax*, female from locality 12EJ (70). *H. trailini*, holotype male (71). *H. trailini*, paratype female (72). *H. trilineatus*, male (73) and female (74) from locality 14EO. *H. novaki* Kovařík, *sp. n.*, holotype female (75).



Figures 76–79: *Hottentotta minax*. **Figures 76–77.** Male from locality 12EG, dorsal (76) and ventral (77) views. **Figures 78–79.** Female from locality 12EJ, dorsal (78) and ventral (79) views.



Figures 80–85: *Hottentotta minax*. **Figures 80–82.** Male from locality 12EG, metasoma and telson, lateral (80), ventral (81), and dorsal (82) views. **Figures 83–85.** Female from locality 12EJ, metasoma and telson, lateral (83), ventral (84), and dorsal (85) views.

Chela lacks carinae. Movable fingers of pedipalps with 13 rows of denticles and 5 terminal denticles. Seventh sternite bears 4 well marked granulate carinae. First to

fourth metasomal segments with 10 carinae; fifth with 5 carinae. All carinae granulated, dorsal carinae bear slightly larger terminal granules. Metasoma robust in fe-



Figures 86–88: *Hottentotta minax*, female with juveniles after first ecdysis (87) and male (88) at the locality 12EJ (86),



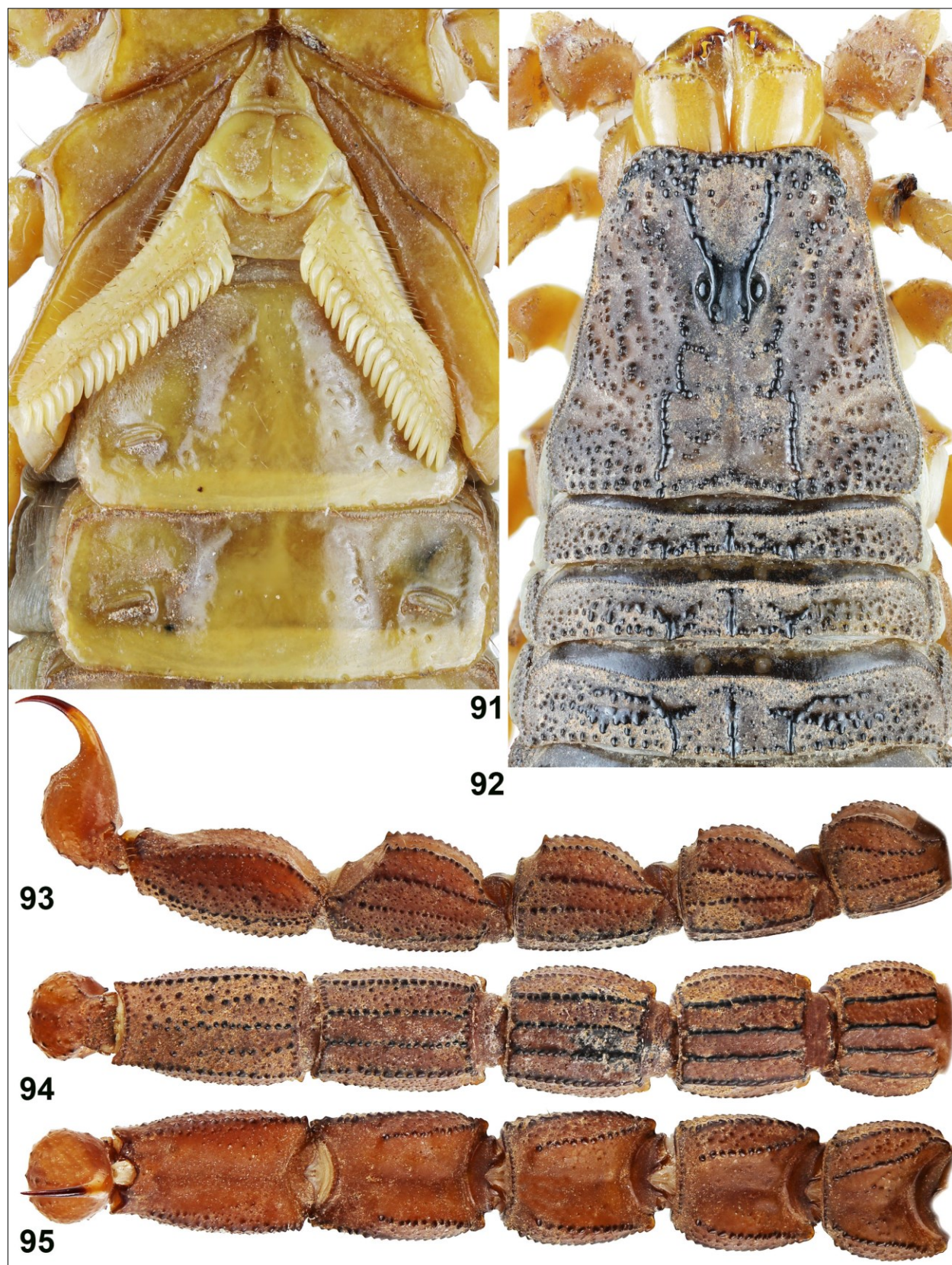
Figures 89–90: *Hottentotta novaki* Kovářík, **sp. n.**, holotype female, dorsal (89) and ventral (90) views.

male. Fourth metasomal segment length/width ratio 1.38; fifth metasomal segment length/width ratio 1.72. Telson bulbous.

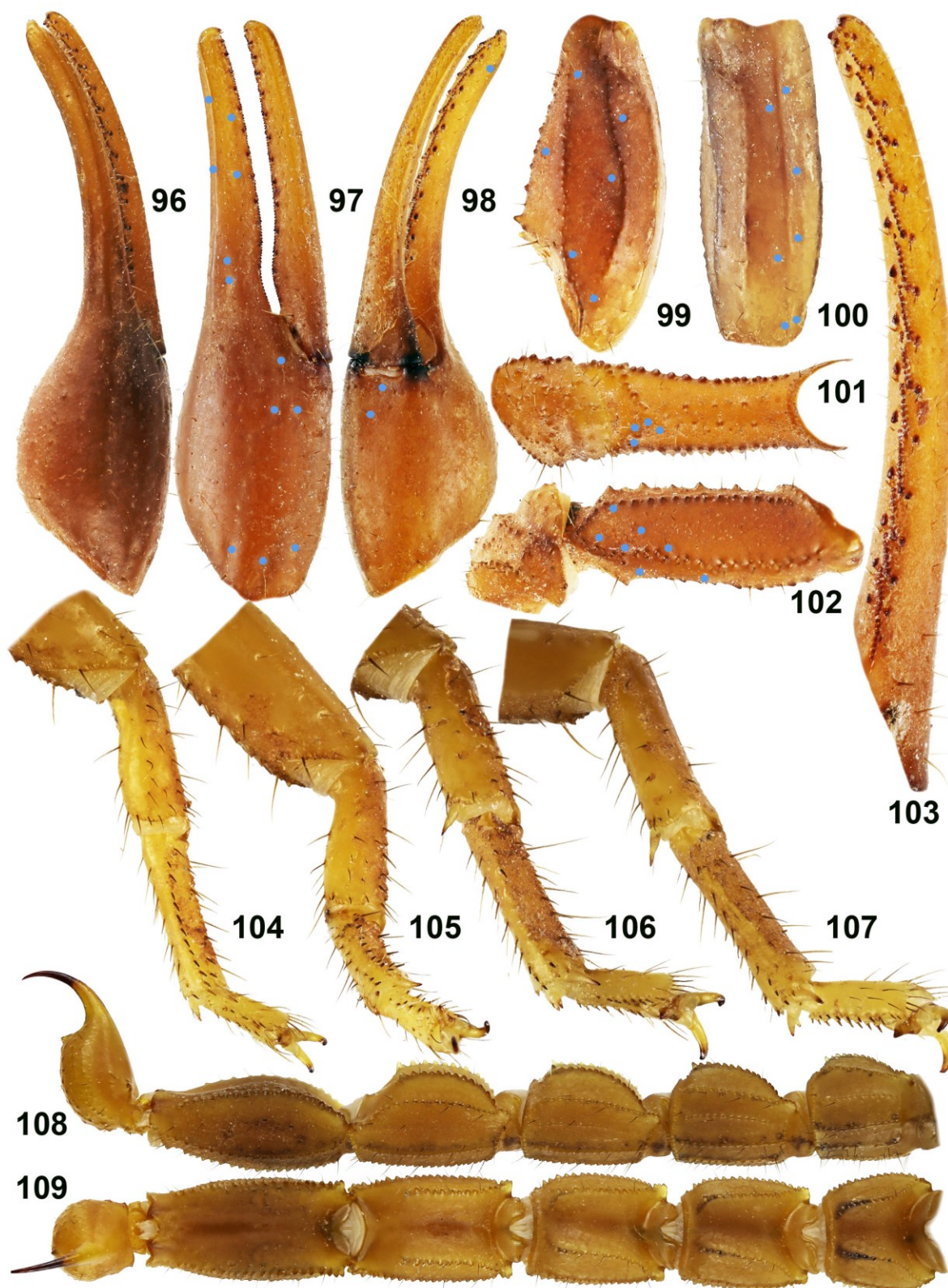
DESCRIPTION. The total length of adult female 52.3 mm. Male unknown. Trichobothrium *db* on fixed finger of pedipalp is situated between trichobothria *et* and *est*. Female has long and narrow chela of pedipalps. Chelicerae are yellow, without reticulation, the tips of teeth on cheliceral fingers are black. For the position and distribution of trichobothria see Figs. 97–102.

COLORATION (Figs. 89–90). The carapace and tergites are black; the metasoma, telson, pedipalps and legs are reddish brown. The tarsomeres of legs are yellowish brown.

MESOSOMA AND CARAPACE (Fig. 92). The carapace is carinate and unevenly covered by granules of varying size; much of the granulation is fine, but some granules are larger and distinctly rounded. Tergites I–VI bear three carinae and are granulated, with some intercarinal granules small and others larger and rounded. Tergite VII is pentacarinat. The pectinal tooth count is 19–20 in



Figures 91–95: *Hottentotta novaki* Kovařík, **sp. n.**, holotype female, sternopectinal region and sternites III–IV (91), chelicerae, carapace and tergites I–III (92), and metasoma and telson, lateral (93), ventral (94), and dorsal (95) views.



Figures 96–109: Figures 96–107. *Hottentotta novaki* Kovařík, **sp. n.**, holotype female. Pedipalp chela, dorsal (96), external (97), and ventral (98) views. Pedipalp patella, dorsal (99) and external (100) views. Pedipalp femur and trochanter, internal (101) and dorsal (102) views. The trichobothrial pattern is indicated in Figures 97–102. Pedipalp movable finger (103). Distal segments of legs I–IV (104–107), retrolateral view. **Figures 108–109.** *H. trilineatus*, male from locality 14EO, metasoma and telson, lateral (108), and dorsal (109) views.



Figures 110–111: *Hottentotta novaki* Kovařík, **sp. n.**, the type locality (110) and holotype female (111) at the type locality.

female. The pectinal marginal tips extend to near to the end of the fourth sternite in female. The pectines have three marginal lamellae and seven middle lamellae. The lamellae bear numerous dark long setae, each fulcrum with three to five setae. All sternites are smooth and sparsely hirsute. The seventh sternite bears four granulate carinae. The other sternites bear two furrows.

PEDIPALPS (Figs. 96–103). The pedipalps are sparsely hirsute and weakly granulated. The femur bears four granulated carinae. The patella bears eight carinae, some of them smooth, without granules and obsolete. The chela is without carinae. The movable fingers of pedipalps bear 13 rows of denticles and five terminal denticles.

LEGS (Figs. 104–107). The tarsomeres bear two rows of macrosetae on the ventral surface and numerous macrosetae on the other surfaces; bristle combs absent. Femur bears only several macrosetae. Femur coarsely granulate, femur and patella with carinae well developed. Tibial spurs present and long on third and fourth legs and absent in the other legs.

METASOMA AND TELSON (Figs. 75, 93–95). All metasomal segments are only very sparsely hirsute. The first metasomal segment is wider than long, other segments are longer than wide. Segments I–IV bear 10 carinae and segment V bears five or seven carinae, three or five ventral and two dorsal. All carinae are granulated and dark colored. The dorsal surface of all segments is smooth in the middle and finely granulated on margins. Other surfaces are granulated. The telson is only sparsely hirsute, bulbous, lumpy and finely granulated.

AFFINITIES. The described features distinguish *H. novaki* sp. n. from all other species of the genus. They are recounted in the key. The morphology (metasoma wide) make the new species very close to *H. minax*. *H. novaki* sp. n. could be distinguished from *H. minax* mainly in morphometry (see Table 4) according to female **1**) pedipalp chela length/width ratio 4.05 in *H. novaki* sp. n. (3.49–3.75 in *H. minax*); **2**) metasomal segment IV length/width ratio 1.38 in *H. novaki* sp. n. (1.31–1.36 in *H. minax*); **3**) metasomal segment V length/width ratio 1.72 in *H. novaki* sp. n. (1.62–1.64 in *H. minax*).

Hottentotta polystictus (Pocock, 1896)

(Figs. 112–131, Table 4)

Buthus polystictus Pocock, 1896: 178.

Hottentotta polystictus: Kovařík & Ojanguren, 2013: 171–172, 318, 338–339, figs. 1069–1072, 1206–1216 (complete reference list until 2013).

TYPE LOCALITY AND TYPE REPOSITORY. Somaliland, Goolis Mts., inland of Berbera; BMNH.

ETHIOPIAN MATERIAL EXAMINED. Ethiopia, NE of Dire Dawa, on road to Djibouti, 09°37'59"N 41°52'43"E, 1124 m a.s.l. (Fig. 131), 30.I.2015, 1♀, leg. T. Mazuch.

SOMALILAND MATERIAL EXAMINED. Somaliland, Hamas, between Hargeisa and Berbera, 10°02.267'N 44°47.299'E, 650 m a.s.l., XI.2010, 1♂1♀, leg. T. Mazuch; 70 km from Berbera to Hargeisa, XI.2010, 1♂, leg. T. Mazuch; Laas Gel, 50 km NE Hargeisa, 09°46'16.6"N 44°27'07.2"E, 1090 m a.s.l., 7.VII.2011, 1♂2♀3juvs., leg. F. Kovařík; between Berbera and Sheikh, 10°05'49.9"N 45°11'40.1"E, 628 m a.s.l., 10.VII.2011, 1♀im., leg. F. Kovařík; Sheikh, Goolis Mts., 09°56'23"N 45°11'14.2"E, 1439 m a.s.l., 11.VII.2011, 2♀2juvs., leg. F. Kovařík; between Burao and Laas Caanood, 09°11'18.4"N 45°54'24"E, 871 m a.s.l., 11.VII.2011, 1♀2juvs., leg. F. Kovařík; Sheikh, 09°57'25.9"N 45°09'52.2"E, 1492 m a.s.l., 12.VII.2011, 1♂7♀, leg. F. Kovařík.

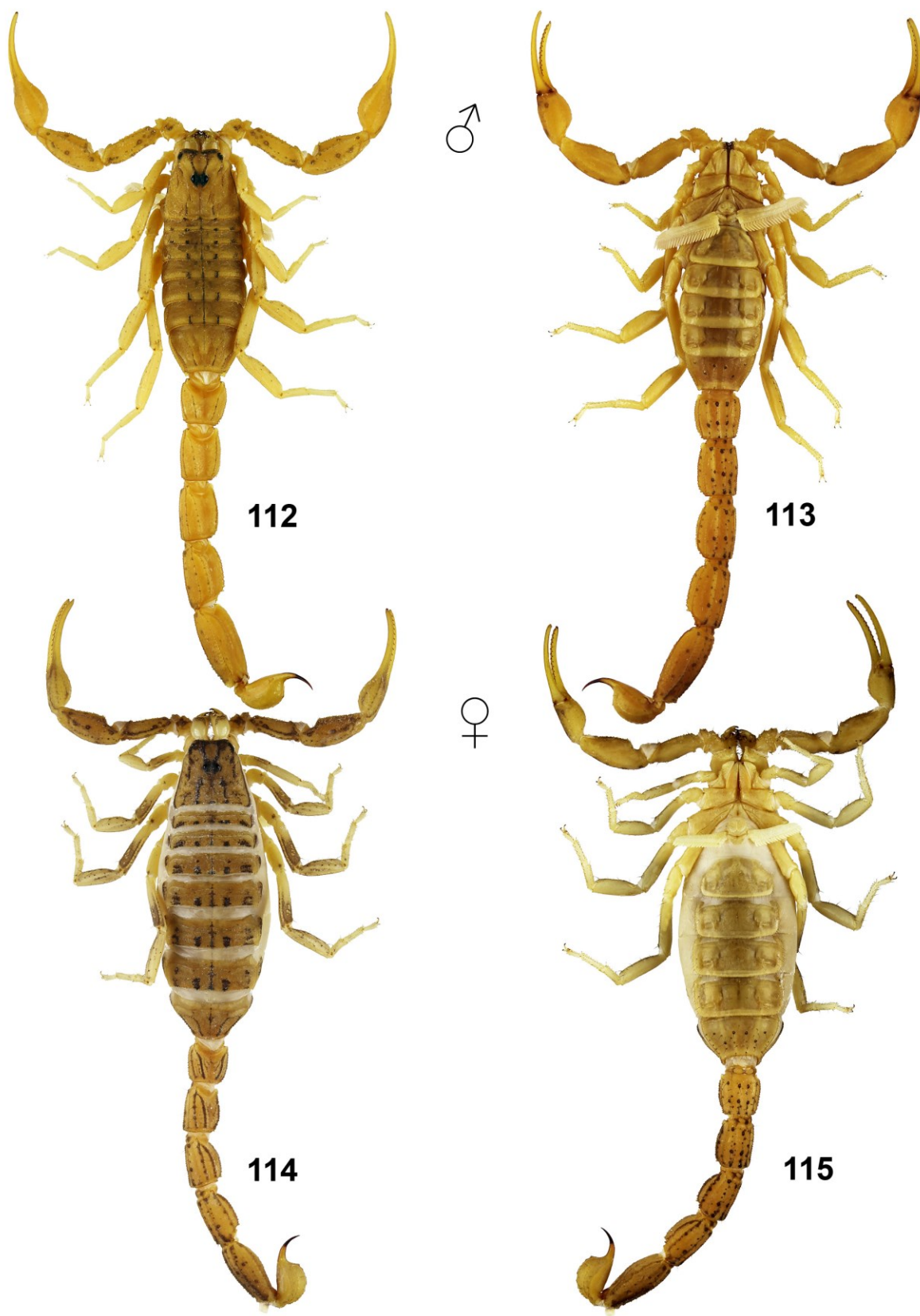
DIAGNOSIS. Total length 40–60 mm, some males may be only 35 mm long. Trichobothrium *db* on fixed finger of pedipalp situated between trichobothria *et* and *est*. Sexual dimorphism not pronounced; manus of pedipalp of approximately same width in both sexes, but males have fingers of pedipalps slightly twisted. Pectinal teeth number 23–27 in males, 18–22 in females. Chelicerae yellow, anterior part could be reticulated in darker specimens. Pedipalps sparsely hirsute. Metasoma with only a few hairs. Color uniformly yellowish brown. Dorsal surfaces of pedipalps and ventral surfaces of metasoma with numerous dark spots. Mesosoma yellowish to reddish brown, with black spots. Femur of pedipalp with 5 carinae that may be incomplete. Patella with 8 carinae, of which some are smooth, without granules and obsolete. Chela lacks carinae but is usually granulate. Movable fingers of pedipalps with 12–14 rows of denticles and 5 or 6 terminal denticles. Seventh sternite bears 4 well marked carinae, usually granulated. First to third metasomal segments with 10 carinae; fourth with 8 or 10 carinae; fifth with 5 carinae. All carinae granulated, dorsal carinae bear larger terminal granules. Metasoma very narrow. First metasomal segment of adults usually longer than wide or as long as wide, second metasomal segment always longer than wide. Fourth metasomal segment length/width ratio 1.70–1.73 in both sexes. Telson very bulbous. Telson length/depth ratio 2.45–2.48 in females.

DISTRIBUTION. In addition to Ethiopia cited also from Eritrea, Djibouti, Somalia, Somaliland, ? Tanzania (Kovařík & Ojanguren, 2013: 172).

Hottentotta trailini Kovařík, 2013

(Figs. 61–62, 67, 71–72, 132–144, 156–157, Tables 3, 4)
Hottentotta trailini Kovařík in Kovařík & Ojanguren, 2013: 176–178, 321, 343–344, figs. 1107–1113, 1235–1243.

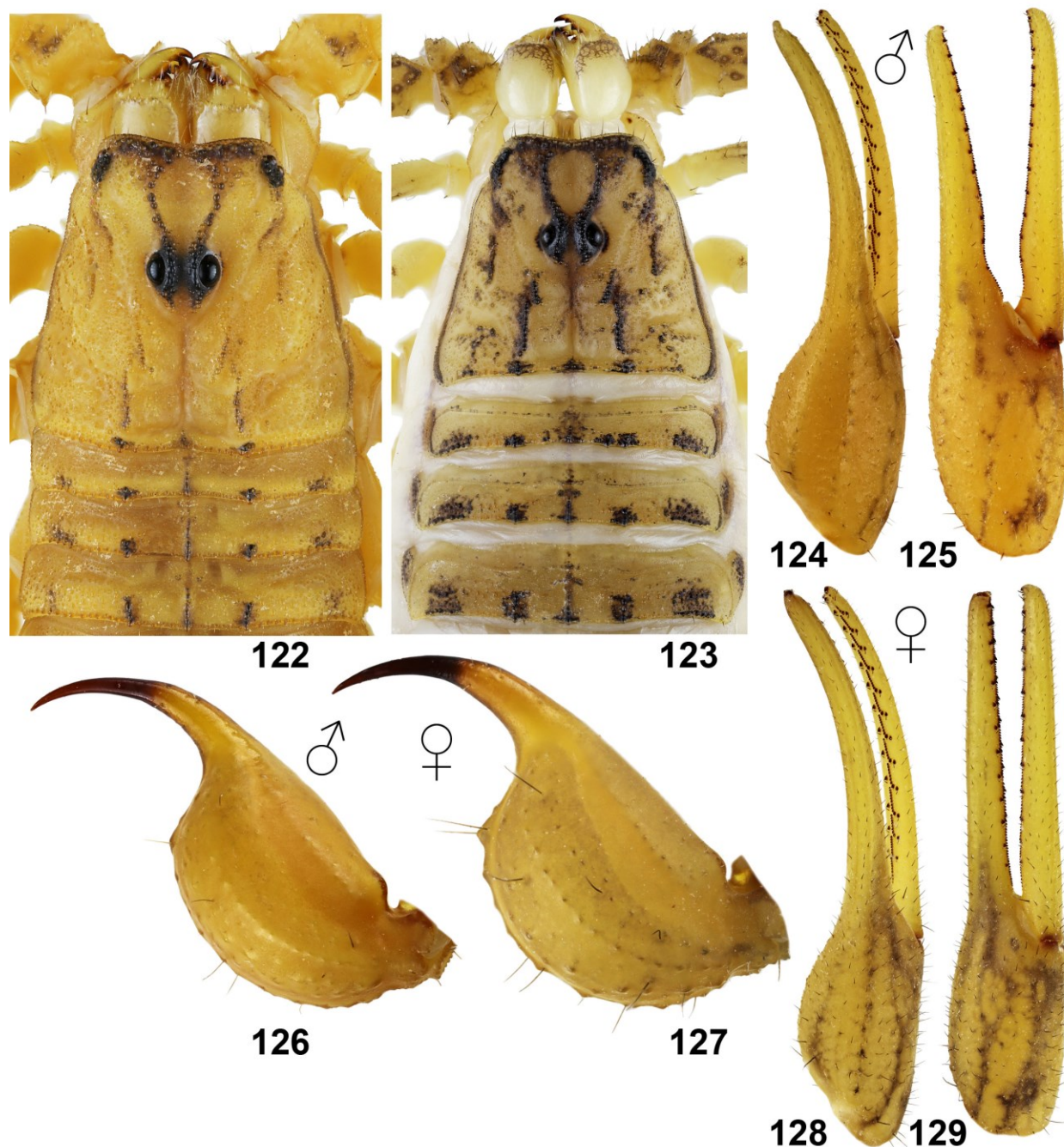
TYPE LOCALITY AND TYPE REPOSITORY. Ethiopia, W of Aykel, 12°33'05.5"N 36°55'05.4"E, 1262 m a. s. l.; FKCP.



Figures 112–115: *Hottentotta polystictus*. **Figures 112–113.** Male from Somaliland, Sheikh, 09°57'25.9"N 45°09'52.2"E, 1492 m a.s.l., dorsal (112) and ventral (113) views. **Figures 114–115.** Female from Ethiopia, NE of Dire Dawa, on road to Djibouti, 09°37'59"N 41°52'43"E, 1124 m a.s.l., dorsal (114) and ventral (115) views.



Figures 116–121: *Hottentotta polystictus*. **Figures 116–118.** Male from Somaliland, Sheikh, 09°57'25.9"N 45°09'52.2"E, 1492 m a.s.l., metasoma and telson, lateral (116), ventral (117), and dorsal (118) views. **Figures 119–121.** Female from Ethiopia, NE of Dire Dawa, on road to Djibouti, 09°37'59"N 41°52'43"E, 1124 m a.s.l., metasoma and telson, lateral (119), ventral (120), and dorsal (121) views.



Figures 122–129: *Hottentotta polystictus*. **Figures 122, 124–126.** Male from Somaliland, Sheikh, 09°57'25.9"N 45°09'52.2"E, 1492 m a.s.l., chelicerae, carapace and tergites I–III (122), pedipalp chela, dorsal (124), and external (125) views, and telson (126), lateral view. **Figures 123, 127–129.** Female from Ethiopia, NE of Dire Dawa, on road to Djibouti, 09°37'59"N 41°52'43"E, 1124 m a.s.l., chelicerae, carapace and tergites I–III (123), telson (127), lateral view, and pedipalp chela, dorsal (128), and external (129) views.

TYPE MATERIAL. Ethiopia, W of Aykel, 12°33'05.5"N 36°55'05.4"E, 1262 m a.s.l., (Fig. 142, Locality No. 12EB), 14.XI.2012, 3♂ (holotype and paratypes) 3♀ 2ims. (paratypes), leg. F. Kovařík, V. Trailin, P. Novák and T. Mazuch, FKCP; Ethiopia, 12°42'17"N 36°29'35"E, 793 m a.s.l. (Locality No. 12EC), 7♂(paratypes)

4♀3juvs.(paratypes), 14.XI.2012, leg. F. Kovařík (UV detection), FKCP.

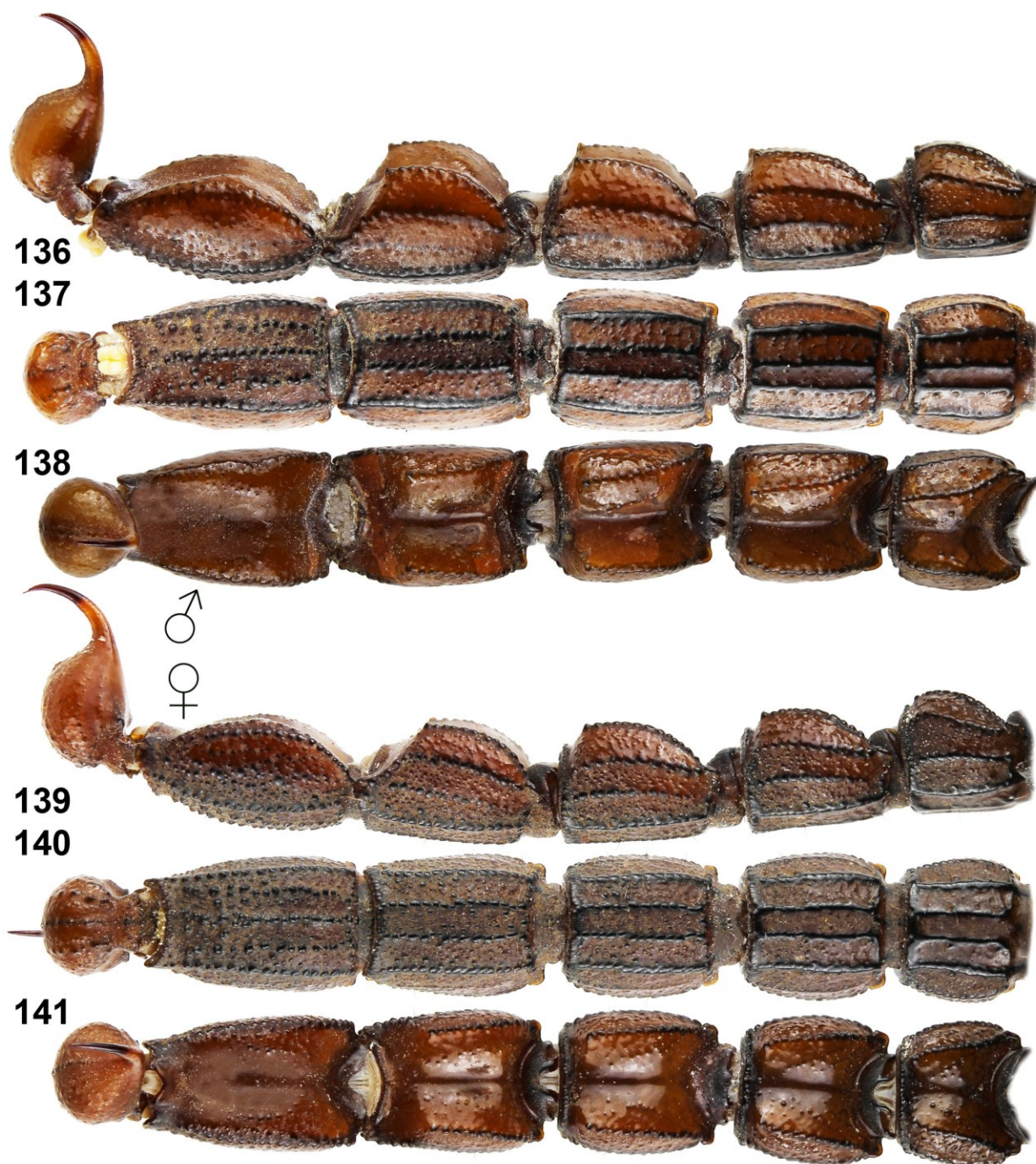
DIAGNOSIS. Total length of adults 40–65 mm. Trichobothrium *db* on fixed finger of pedipalp situated between trichobothria *et* and *est*. Male with fingers prox-



Figures 130–131: *Hottentotta polystictus*, female from Ethiopia, NE of Dire Dawa, on road to Djibouti, 09°37'59"N 41°52'43"E, 1124 m a.s.l. (130), and the locality (131).



Figures 132–135: *Hottentotta trailini*. **Figures 132–133.** Holotype male, dorsal (132) and ventral (133) views. **Figures 134–135.** Paratype female, dorsal (134) and ventral (135) views.



Figures 136–141: *Hottentotta trailini*. **Figures 136–138.** Holotype male, metasoma and telson, lateral (136), ventral (137), and dorsal (138) views. **Figures 139–141.** Paratype female, metasoma and telson, lateral (139), ventral (140), and dorsal (141) views.

imally more twisted than female. Female has longer and very slightly narrower chela of pedipalps. Pectinal teeth number 23–27 in males, 21–24 in females. Chelicerae yellowish brown, with reticulation, tips of teeth on cheliceral fingers black. Pedipalps and metasoma sparsely hirsute. Carapace and tergites black; metasoma, telson, dorsal surfaces of femur and patella of pedipalps

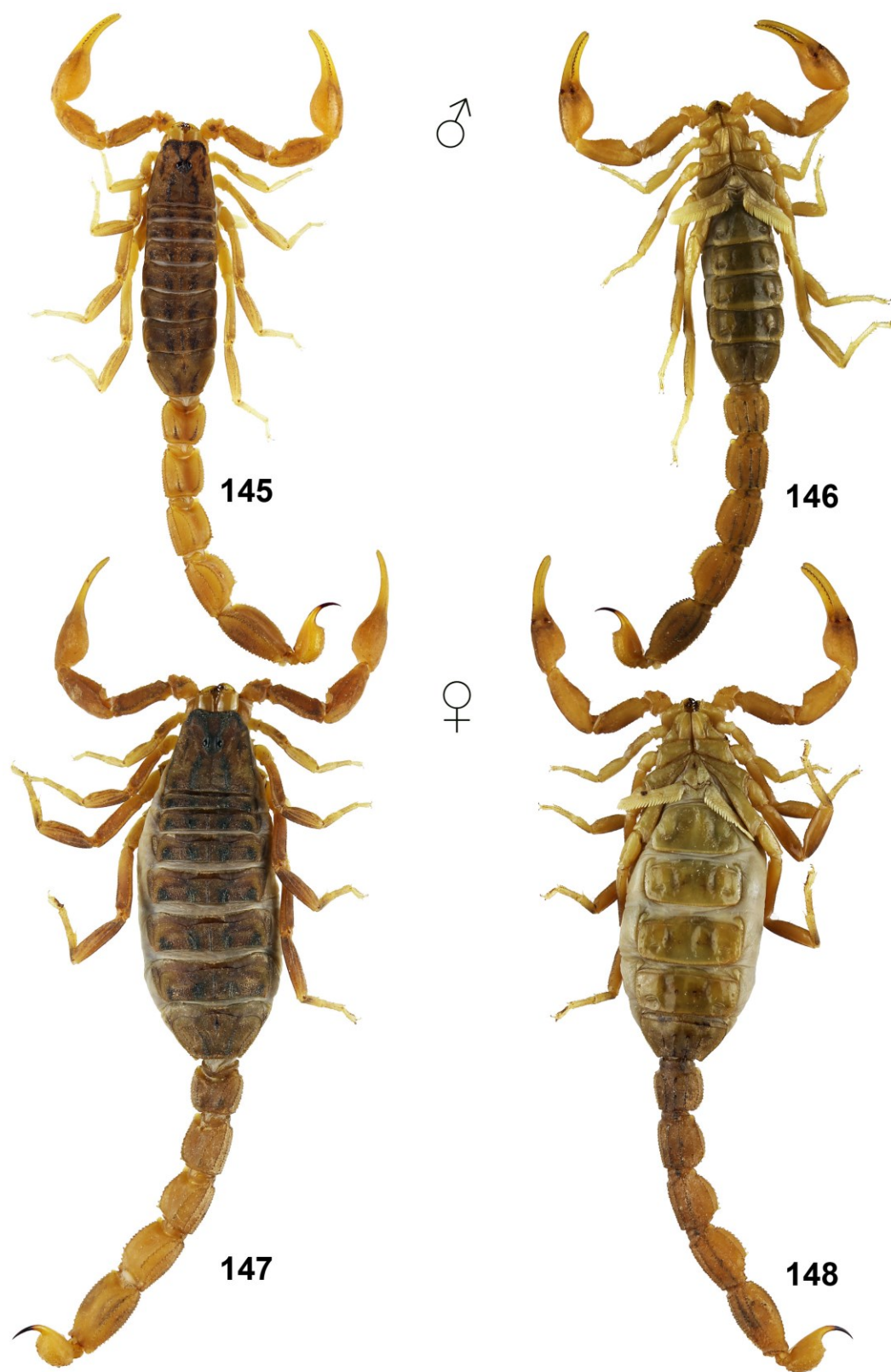
and legs brownish to black. Chela of pedipalps yellowish to reddish brown. Pedipalps sparsely hirsute and weakly granulated. Femur of pedipalp with 4 granulate carinae. Patella with 8 carinae, some of them smooth, without granules and obsolete. Chela lacks carinae. Movable fingers of pedipalps with 13 rows of denticles and 5 terminal denticles. Seventh sternite bears 4 well marked



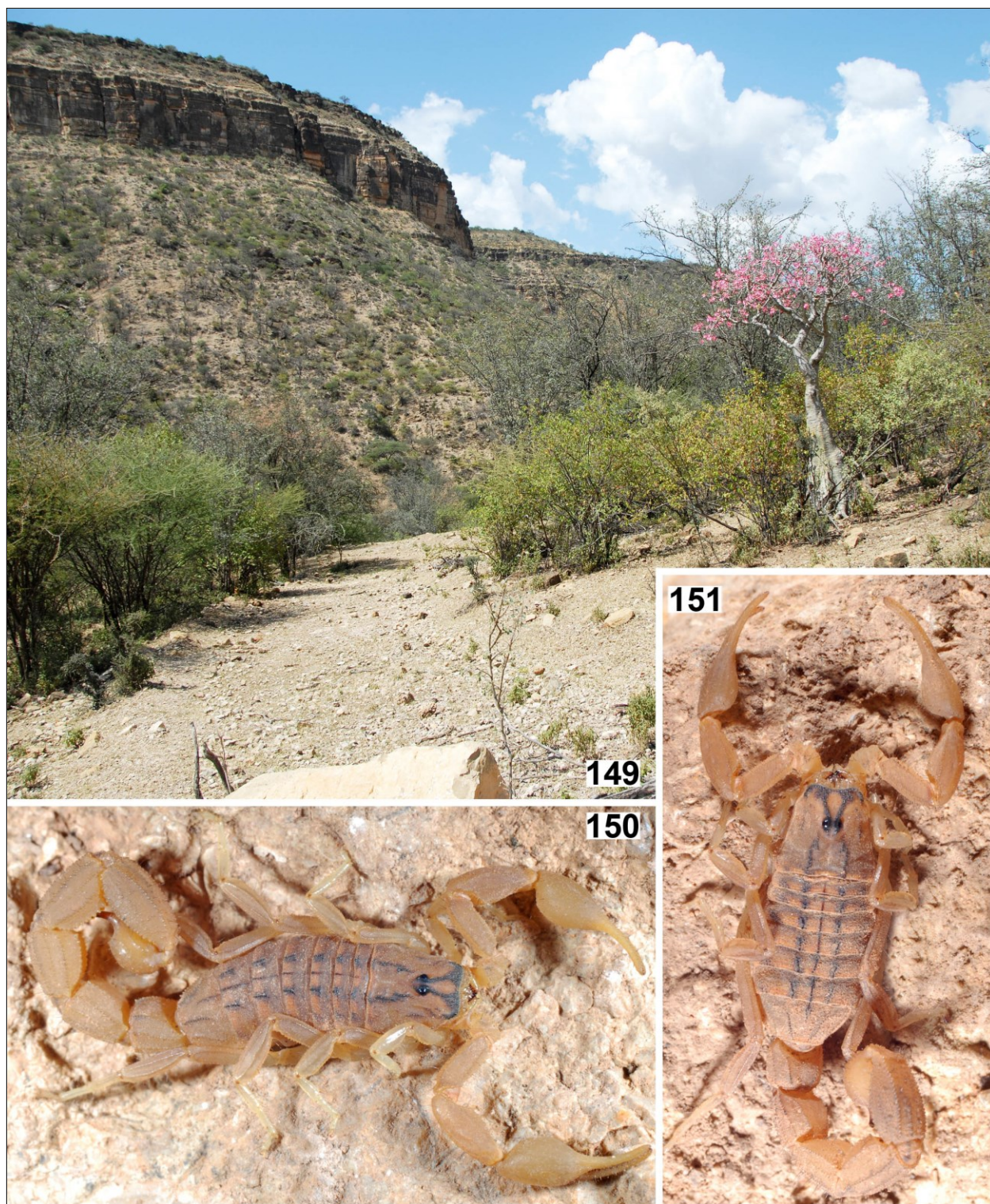
Figures 142–144: *Hottentotta trailini*. **Figure 142.** The type locality. **Figures 143–144.** Male at the type locality (143), and female with newborns.

obsolete carinae. First to fourth metasomal segments with 10 carinae; fifth with 5 or 7 carinae. All carinae granulated, dorsal carinae bear slightly larger terminal

granules. Metasoma wide. Length to width ratio of fourth metasomal segment 1.2–1.4. Telson rather bulbous.



Figures 145–148: *Hottentotta trilineatus*. **Figures 145–146.** Male from Ethiopia, Oromia State, Borena region, between Negele and Filtu, 05°13'12.2"N 39°52'29.3"E, 1406 m a.s.l. (Locality No. 14EE), dorsal (145) and ventral (146) views. **Figures 147–148.** Female from Ethiopia, Oromia State, Bale region, Negele env., 05°56'33"N 39°40'20.3"E, 1514 m a.s.l. (Locality No. 14EL), dorsal (147) and ventral (148) views.



Figures 149–151: *Hottentotta trilineatus*. **Figure 149.** Locality No. 14EQ, Ethiopia, Oromia State, West Harerge, 07°45'42.1"N 40°32'30.9"E, 1425 m a.s.l.. **Figure 150.** Male at the locality No. 14EI, Ethiopia, Somali State, Liben region, between Filtu and Dolo Odo, 04°50'07.5"N 40°55'13.5"E, 912 m a.s.l. **Figure 151.** Female at the locality No.14EG, Ethiopia, Somali State, Liben region, Filtu, 05°06'48.7"N 40°39'18.3"E, 1229 m a.s.l.



Figures 152–157: Chelicerae. **Figures 152–153.** *Hottentotta gibaensis* Kovařík, *sp. n.*, female paratype ventral (152) and dorsal (153) views. **Figures 154–155.** *Hottentotta minax*, female from locality 12EF ventral (154) and dorsal (155) views. **Figures 156–157.** *Hottentotta trailini*, female paratype from type locality ventral (156) and dorsal (157) views.

DISTRIBUTION. Ethiopia.

***Hottentotta trilineatus* (Peters, 1861)**

(Figs. 63–64, 68, 73–74, 108–109, 145–151, Tables 3, 4)

Centrurus trilineatus Peters, 1861: 515.

Hottentotta trilineatus (in part): Kovařík & Ojanguren, 2013: 178–179, 318, 341–342, 373, figs. 1073–1076, 1221–1231, 1233–1234, 1563–1564 (complete reference list until 2013).

TYPE LOCALITY AND TYPE REPOSITORY. Mozambique, Tette; ZMHB.

ETHIOPIAN MATERIAL EXAMINED. Ethiopia, Oromia State, Arsi Province, 06°56'06"N 40°41'23"E, 1693 m a.s.l. (Locality No. 13EA, fig. 1227 in Kovařík & Ojanguren, 2013: 342), 24.VI.2013, 2♂9♀2ims., leg. F. Kovařík, J. Plíšková, P. Novák, FKCP; Oromia State, Arsi Province, Sof Omar, 06°54'19"N 40°51'04"E, 1200 m a.s.l. (Locality No. 13EC), 24.-25.VI.2013, 7♂9♀3ims.2juvs. (UV detection), 23.-24.XI.2014, 1♂12♀4juvs., leg. F. Kovařík, J. Plíšková, P. Novák, FKCP; Oromia State, Bale Province, Negele env., 05°57'14"N 39°40'30"E, 1343 m a.s.l. (Locality No. 13ED), 25.VI.2013, 1♀1♀im., 19.XI.2014, 1♂4♀, leg. F. Kovařík, FKCP; Oromia State, Borana Province, Negele env., 05°13'20"N 39°38'10"E, 1538 m a.s.l. (Locality No. 13EEB), 26.VI.2013, 4♂8♀2♀ims., leg. F. Kovařík, J. Plíšková, P. Novák, FKCP; Oromia State, Borana Province, Negele env., 05°11'01"N 39°36'37"E, 1513 m a.s.l. (Locality No. 13EEC, fig. 1231 in Kovařík & Ojanguren, 2013: 342), 26.VI.2013, 1♂, leg. F. Kovařík, FKCP; Oromia State, Borana Province, 05°04'01"N 39°28'47.7"E, 1044 m a.s.l. (Locality No. 13EG), 27.VI.2013, 1♂3♀, leg. F. Kovařík, FKCP; Oromia State, Borana Province, Wachille, 04°50'50"N 39°18'25.3"E, 808 m a.s.l. (Locality No. 13EH, fig. 1234 in Kovařík &

Ojanguren, 2013: 342), 27.VI.2013, 1im., leg. F. Kovařík, FKCP; Oromia State, Borana Province, 04°25'31.5"N 38°58'14"E, 1171 m a.s.l. (Locality No. 13EI), 27.-28.VI.2013, 5♂5♀4juvs. (UV detection), leg. F. Kovařík, FKCP; Oromia State, Borana Province, S of Yabello, 04°27'16"N 38°15'30"E, 1587 m a.s.l. (Locality No. 13EK), 29.VI.2013, 1♀, leg. F. Kovařík, FKCP; Oromia State, 04°58'05"N 37°53'13.2"E, 1327 m a.s.l. (Locality No. 13EM, fig. 1564 in Kovařík & Ojanguren, 2013: 373), 30.VI.2013, 1juv., leg. F. Kovařík, J. Plíšková, FKCP; Southern Nationalities and Peoples Region Federal State (SNNPR), Woito, 05°22'23.7"N 36°59'37.3"E, 598 m a.s.l. (Locality No. 13EO), 1.VII.2013, 1♂2♀, leg. F. Kovařík, FKCP; SNNPR, Tsamai, Luqua, 05°27'20"N 36°49'50"E, 660 m a.s.l. (Locality No. 13EP), 1.-2.VII.2013, 2♀, leg. F. Kovařík, FKCP; SNNPR, Hammar, 05°27'29"N 36°39'42"E, 1398 m a.s.l. (Fig. 149, Locality No. 13EQ), 3.VII.2013, 1♂, leg. F. Kovařík, FKCP; SNNPR, Hammar, near Turmi, 04°59'17.4"N 36°28'35.9"E, 1136 m a.s.l. (Locality No. 13ES), 4.VII.2013, 1♀, leg. F. Kovařík, FKCP; SNNPR, near Omorate, 04°48'20.4"N 36°25'32.3"E, 761 m a.s.l. (Locality No. 13ET), 4.VII.2013, 2♀1juv., leg. F. Kovařík, FKCP; SNNPR, Omorate (Kelem), 04°48'42"N 36°03'16.7"E, 373 m a.s.l. (Locality No. 13EU), 4.-5.VII.2013, 3♂1♀, leg. F. Kovařík, J. Plíšková, FKCP; SNNPR, Hammar, E of Turmi, 04°52'17"N 36°38'44"E, 385 m a.s.l. (Locality No. 13EV, fig. 1563 in Kovařík & Ojanguren, 2013: 373), 5.VII.2013, 1♂1♀2juvs., leg. F. Kovařík, P. Novák, FKCP; SNNPR, "lower valley of the Omo river", Chew Bahr, 04°50'38.5"N 36°44'11.4"E, 625 m a.s.l. (Locality No. 13EW), 5.-6.VII.2013, 9♂8♀6juvs. (UV detection), leg. F. Kovařík, FKCP; Oromia State, Borena region, between Negele and Filtu, 05°13'33.1"N 39°50'04"E, 1541 m a.s.l. (Locality No. 14ED), 19.XI.2014, photos only, F. Kovařík; Oromia State, Borena region, between Negele and Filtu, 05°13'12.2"N 39°52'29.3"E, 1406 m a.s.l. (Locality No.

Ratios of adult males	<i>H. gibaensis</i> sp. n. (n = 11)	<i>H. minax</i> (n = 15)	<i>H. trailini</i> (n = 10)	<i>H. trilineatus</i> (n = 15)
Metasomal segment I (L/W)	0.85–0.88	0.84–0.89	0.90–0.93	0.89–1.05
Metasomal segment II (L/W)	1.10–1.15	1.02–1.15	1.05–1.10	1.10–1.18
Metasomal segment IV (L/W)	1.48–1.52	1.35–1.44	1.37–1.40	1.40–1.51
Metasomal segment IV (L/H)	1.30–1.39	1.45–1.53	1.46–1.49	1.49–1.52
Metasomal segment V (L/W)	1.64–1.71	1.53–1.60	1.55–1.66	1.81–1.85
Metasomal segment V (L/H)	1.85–1.91	1.79–1.85	1.92–1.93	2.05–2.13
Telson (L/H)	2.22–2.38	2.07–2.24	2.21–2.33	2.29–2.32
Pedipalp chela (L/W)	3.28–3.40	3.00–3.35	3.15–3.22	2.98–3.24
Pedipalp chela (L) / MF (L)	1.64–1.70	1.57–1.67	1.67–1.72	1.64–1.70
Total (L)	47–55.5	45–56	43–64	35–48.2

Table 3: Comparison among Ethiopian *Hottentota* species (specimens), based upon selected morphometric ratios of adult males. Abbreviations: length (L), width (W), depth (H), movable finger (MF).

Ratios of adult females	<i>H. gibaensis</i> sp. n. (n = 15)	<i>H. minax</i> (n = 12)	<i>H. novaki</i> sp. n. (n = 1)	<i>H. polystictus</i> (n = 1)	<i>H. trailini</i> (n = 7)	<i>H. trilineatus</i> (n = 15)
Metasomal segment I (L/W)	0.88–0.90	0.86–0.88	0.89	1.00	0.82–0.88	0.89–0.92
Metasomal segment II (L/W)	1.09–1.13	1.04–1.08	1.05	1.27	1.00–1.02	1.12–1.18
Metasomal segment IV (L/W)	1.48–1.54	1.31–1.36	1.38	1.70	1.26–1.28	1.50–1.61
Metasomal segment IV (L/H)	1.44–1.45	1.50–1.55	1.52	1.71	1.52–1.31	1.51–1.61
Metasomal segment V (L/W)	1.83–1.88	1.62–1.64	1.72	2.29	1.57–1.63	1.87–1.92
Metasomal segment V (L/H)	1.88–1.96	1.83–1.93	1.95	2.12	1.85–1.90	2.05–2.09
Telson (L/H)	2.20–2.26	2.16–2.34	2.11	2.46	2.06–2.26	2.30–2.36
Pedipalp chela (L/W)	3.86–4.05	3.49–3.75	4.04	4.72	3.02–3.25	3.60–3.82
Pedipalp chela (L) / MF (L)	1.56–1.57	1.59–1.62	1.65	1.63	1.59–1.67	1.56–1.60
Total (L)	58–65.18	50–64	52.3	51	55–73	40–52

Table 4: Comparison among Ethiopian *Hottentota* species (specimens), based upon selected morphometric ratios of adult females. Abbreviations: length (L), width (W), depth (H), movable finger (MF).

14EE), 19.XI.2014, 3♂1♀1juv., leg. F. Kovařík, FKCP; Somali State, Liben region, Filtu, 05°06'48.7"N 40°39'18.3"E, 1229 m a.s.l. (Locality No. 14EG), 19.–21. XI.2014, 1♂1♀(Fig. 151), leg. F. Kovařík, FKCP; Somali State, Liben region, between Filtu and Dolo Odo, 04°50'18.1"N 40°56'23.5"E, 885 m a.s.l. (Locality No. 14EH), 20.XI.2014, 4♀, leg. F. Kovařík, FKCP; Somali State, Liben region, between Filtu and Dolo Odo, 04°50'07.5"N 40°55'13.5"E, 912 m a.s.l. (Locality No. 14EI), 20.XI.2014, photos only, Fig. 150, F. Kovařík; Somali State, Liben region, between Filtu and Negele, 05°10'22.9"N 40°19'16.9"E, 1209 m a.s.l. (Locality No. 14EJ), 21.XI.2014, photos only, F. Kovařík; Somali State, Liben region, between Filtu and Negele, 05°11'29.4"N 40°07'19.9"E, 1168 m a.s.l. (Locality No. 14EK), 21.XI.2014, photos only, F. Kovařík; Oromia State, Bale region, Negele env., 05°56'33"N 39°40'20.3"E, 1514 m a.s.l. (Locality No. 14EL), 22.XI.2014, 1♂5♀, leg. F. Kovařík, FKCP; Oromia State, Bale region, 05°59'49.7"N 39°42'23"E, 1513 m a.s.l. (Locality No. 14EM), 22.XI.2014, photos only, F. Kovařík; Oromia State, West Harerge, 07°44'37"N 40°42'39.5"E,

1234 m a.s.l. (Locality No. 14E0), 24.–25.XI.2014, 1♂6♀, leg. F. Kovařík, FKCP; Oromia State, West Harerge, 07°46'39.7"N 40°37'12.4"E, 800 m a.s.l. (Locality No. 14EP), 25.XI.2014, photos only, F. Kovařík; Oromia State, West Harerge, 07°45'42.1"N 40°32'30.9"E, 1425 m a.s.l. (Fig. 149, Locality No. 14EQ), 25.XI.2014, photos only, F. Kovařík; Oromia State, West Harerge, 07°49'12.6"N 40°31'54"E, 918 m a.s.l. (Locality No. 14ER), 25.XI.2014, 3♂5♀4juvs, leg. F. Kovařík, FKCP.

DIAGNOSIS. Total length 35–65 mm. Trichobothrium *db* on fixed finger of pedipalp situated between trichobothria *et* and *est*, may be level with *est*, or rarely between *est* and *esb*. Male with fingers proximally twisted and manus and metasomal segments wider than female. Pectinal teeth number 22–28 in males, 17–25 in females. Chelicerae yellow, without reticulation. Nearly entire body hirsute, but not densely. Color uniformly yellow to reddish brown, mesosomal segments and carapace usually with orange spots and longitudinal black stripes. Metasomal carinae may be black as well. Femur of pedipalp with 3 complete and 2 incomplete carinae.

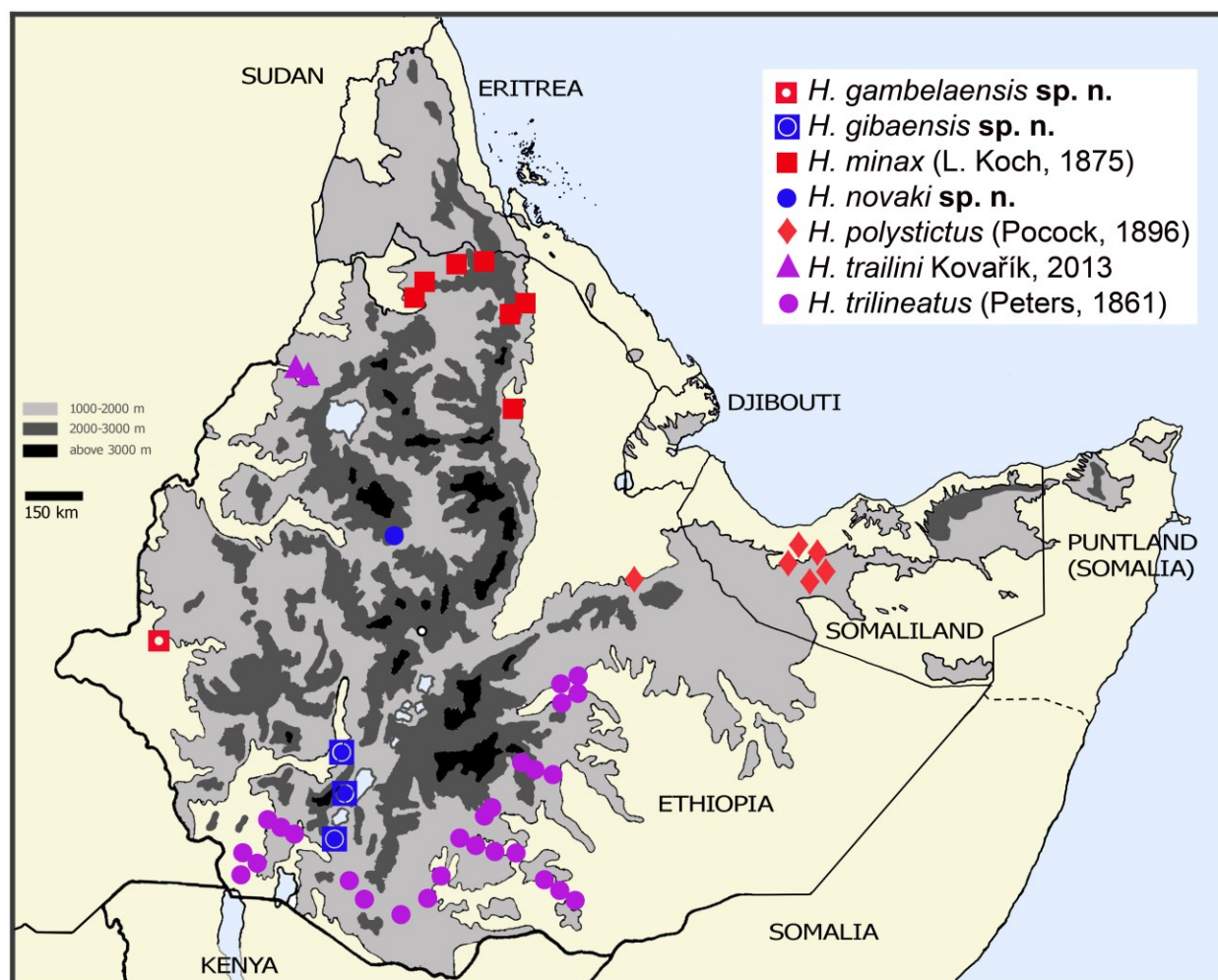


Figure 158: Map showing the distribution of *Hottentotta* in Ethiopia and Somaliland checked during 2011–2015 expeditions.

Patella with 8 carinae, of which some are smooth, without granules and obsolete. Chela lacks carinae. Movable fingers of pedipalps with 11–13 rows of denticles and 5 terminal denticles. Seventh sternite with 4 well marked carinae. First to third metasomal segments with 10 carinae; fourth with 8 or 10 carinae; fifth with 5 carinae and two ventral rows of granules. All carinae granulated, dorsal carinae bear larger terminal granules. In males granules usually larger and more pronounced than in females. First metasomal segment of adults longer than wide or as wide as long; second metasomal segment longer than wide. Length to width ratio of fourth metasomal segment less than 1.6.

DISTRIBUTION. In addition to Ethiopia cited also from Botswana, Democratic Republic of Congo, Kenya, Mozambique, ?Somalia, South Africa, Tanzania, Zambia, Zimbabwe (Kovařík & Ojanguren, 2013: 178).

KEY TO SPECIES OF *HOTTENTOTTA* OCCURRING IN ETHIOPIA

1. Metasoma very narrow. Fourth metasomal segment length/width ratio 1.70–1.73 in both sexes. Telson very bulbous. Telson length/depth ratio 2.45–2.48 in females. *H. polystictus* (Pocock, 1896)
 – Fourth metasomal segment length/width ratio 1.31–1.61 in both sexes. Telson length/depth ratio 2.06–2.36 in females. 2
2. Chelicerae yellow, usually without reticulation (Figs. 153, 155). 4
 – Chelicerae yellowish to brown, with strong reticulation (Figs. 5, 157). 3
3. Carapace and tergites black with yellow spots (Fig. 5); metasoma and telson yellow to yellowish brown (Figs.

6–8); fingers of pedipalp yellow and manus almost black (Fig. 9). *H. gambelaensis* sp. n.
 – Carapace and tergites black without yellow spots (Fig. 67); metasoma and telson brownish to black (Figs. 136–141); chela of pedipalps uniformly yellowish to reddish brown (Figs. 61–62). *H. trailini* Kovařík, 2013

4. Metasoma narrow. First metasomal segment length/width ratio 0.89–1.05; fifth metasomal segment length/width ratio 1.81–1.92 in both sexes.
 *H. trilineatus* (Peters, 1861)
 – First metasomal segment length/width ratio 0.84–0.89 in males; fifth metasomal segment length/width ratio 1.53–1.71 in males. 5

5. Pedipalp chela length/width ratio 3.49–3.75 in females. *H. minax* (L. Koch, 1875)
 – Pedipalp chela length/width ratio 3.86–4.05 in females. 6

6. Metasoma narrow in females. Fourth metasomal segment length/width ratio 1.44–1.45; fifth metasomal segment length/width ratio 1.83–1.88.
 *H. gibaensis* sp. n.
 – Metasoma robust in females. Fourth metasomal segment length/width ratio 1.38; fifth metasomal segment length/width ratio 1.72. *H. novaki* sp. n.

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